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Vol. XXVI. Part 5.

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The Journal of the Department of Agriculture of Victoria, Australia.

May, 1928.

PRINCIPAL CONTENTS

Fat Lamb Raising

Sowing Permanent Crops

Wheat-Growing Experiments

Registration of Stallions—Annual Report

Control of Scab or Shot Hole of Apricots

Crop and Fallow Competitions

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THE DEPARTMENT OF AGRICULTURE,

VICTORIA, AUSTRALIA.

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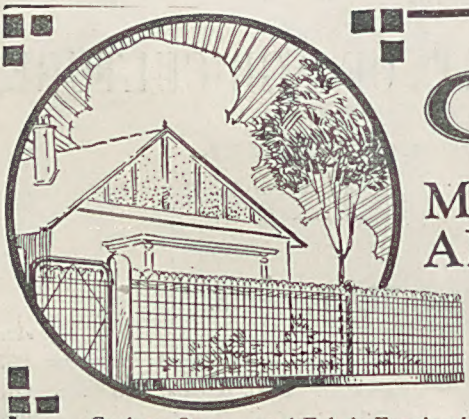

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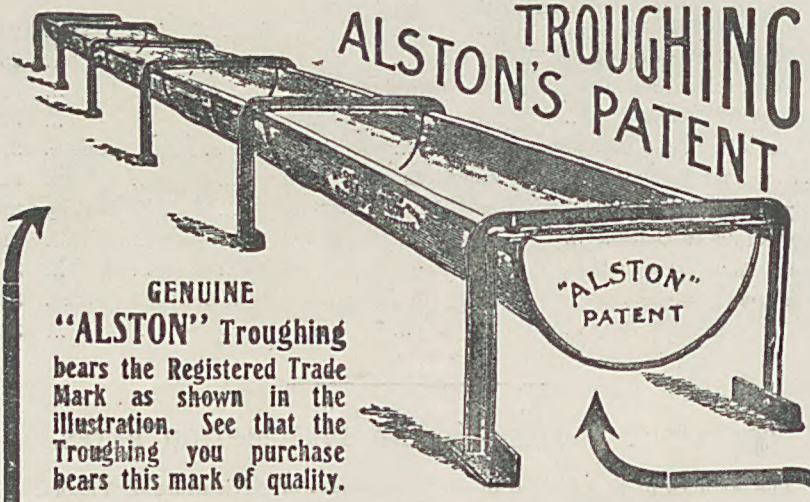

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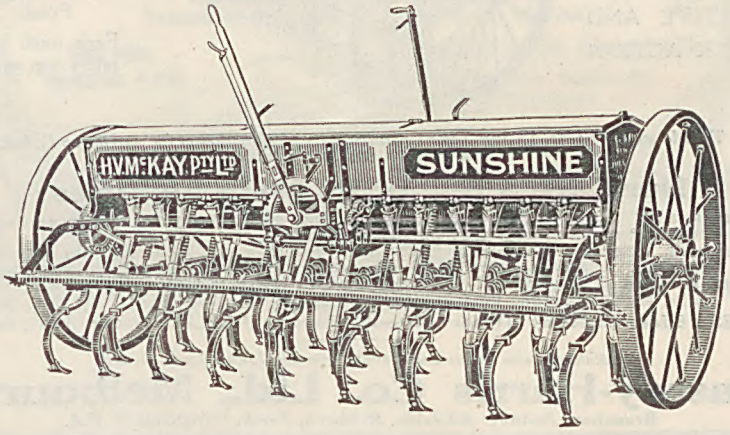

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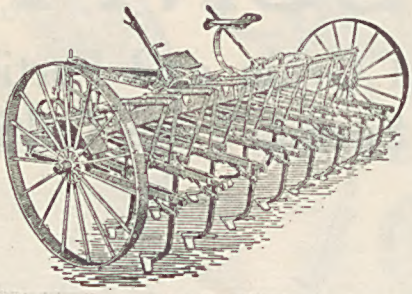

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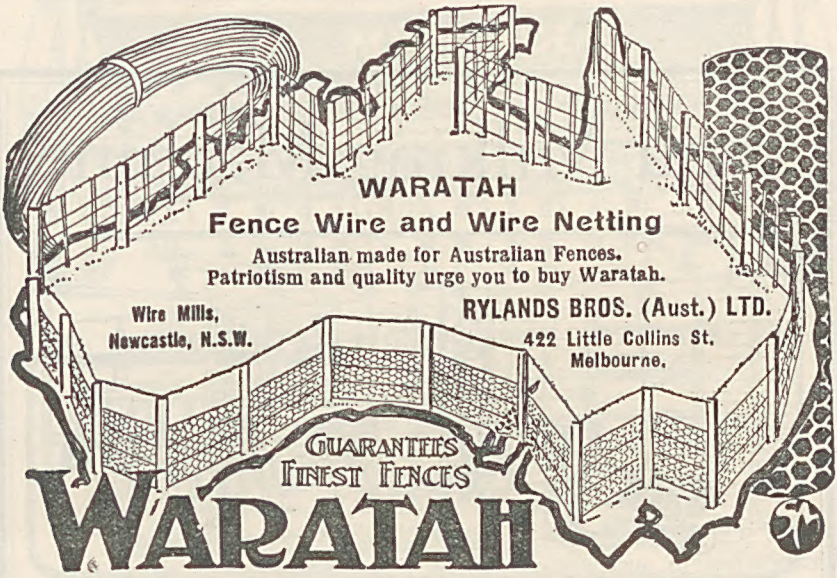

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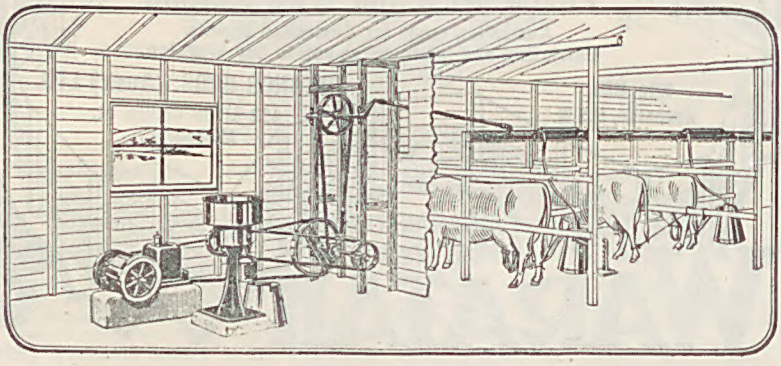

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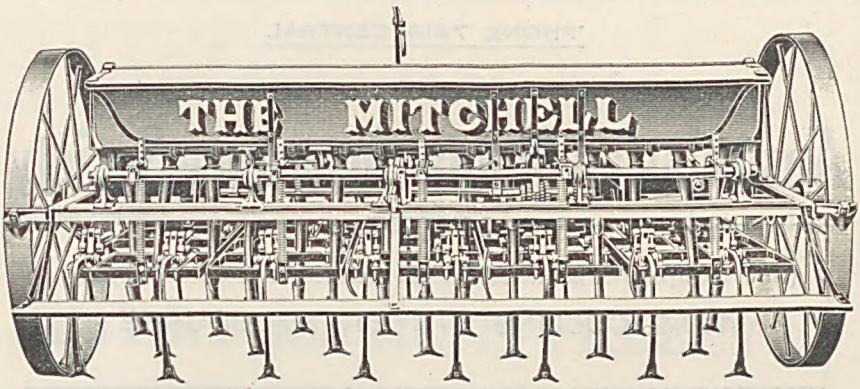

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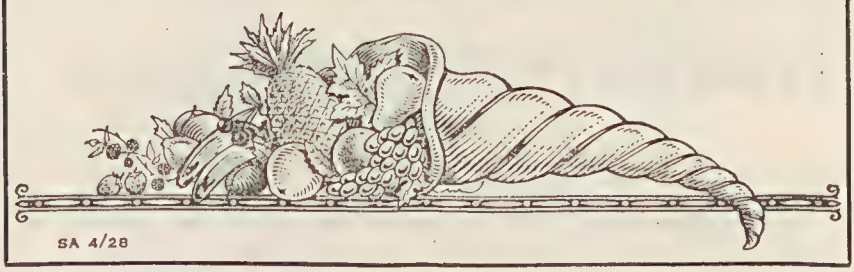

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Vol. XXVI. **May, 1928.** **Part 5**

FAT LAMB RAISING.

By N. A. Bowman, Sheep and Wool Expert.

Wherever the sheep industry is of any importance, the rearing of fat lambs commands serious attention. In Victoria, last season, 1,927,000 lambs, valued at approximately £1,753,000, were taken from the farmers of this State by the trade. In view of these figures, it is of interest and great educational value to consider the factors governing fat-lamb production, not only in Australia, but also in other countries.

Meeting Trade Requirements.

It is very important that the sheep farmer should be able to supply exactly the sort of lamb that is required, for, unless goods meet with the demand of the consuming public, the highest monetary value cannot be obtained for them. A moment's reflection on the number of lambs slaughtered, together with the price obtained over a given period, will impress upon us what the meeting of trade requirements really means in pounds, shillings, and pence. When scanning market reports it will be noticed that prices range from about 17s. to 33s. The variation is probably greater, but these figures will serve as a means of illustration. As already stated, some 1,927,000 lambs were slaughtered in this State last year to meet the local and the export trade, and the average price obtained for these lambs was under £1 per head. When we consider the prices that have ruled for some years, one is inclined to think that it must be a very poor sort of lamb that is not worth £1. Yet last year's price fell short of that amount, and if the lambs sold then did not average more than £1, it would seem that our farmers received between £150,000 and £200,000 less than they would have received if a more desirable type of animal had been offered.

The questions therefore arise—"What are the trade requirements?" and "How are they to be met?" The size of lamb best suited for export is one having a dressed weight of about 30 to 36 lb., perhaps a little lighter—certainly no heavier. It is, therefore, a great mistake, at times when exporters are operating freely, to market lambs likely to

exceed the 36-lb. mark. For local requirements, lambs of more than 40 lb. are not desired. Apart from the question of weight, the ideal lamb is one low-set, junky, deeply fleshed along the back, with all joints well let down, full and plump, and with all the flesh full of sap. Lambs with these qualities cannot, of course, be produced in all districts, as climate and pasture are the factors governing the rearing of good healthy sheep. But the ideal sheep should be kept in mind, and an effort made to produce lambs as near the type as possible.

Hand-feeding of Sheep.

According to American writers, in countries such as the United States, where hand-feeding is practised extensively, lambs of the exact quality required are produced. The fattening of lambs by means of hand-feeding, in addition to ordinary pastures, has not commanded very much attention in Australia. A few minor tests have come under my notice, but it is not possible at this juncture to express an opinion as to the economic aspect of the question. Feeding tests with dry sheep were started at the State Research Farm, Werribee, soon after my appointment, but owing to circumstances that could not be overcome these had to be curtailed. It is hoped that tests as first designed will be again proceeded with shortly, and the information and data obtained be made available to the farming community. The results of the experiments, so far made at Werribee, were printed in pamphlet form; copies of the pamphlet can be had on application to the Department of Agriculture.

Hand-feeding of sheep in the United States of America was started about 1890, and the practice has increased year by year since. According to Mr. Walker, the Consulting Wool Specialist of U.S.A., who was in Australia in July of last year, the common practice at first was to fill the feeding yards, early in October, with sheep and lambs, each set of yards accommodating several thousand These would be ready for market about midwinter. The fodder used was the waste or screenings from large flour mills, looked upon then as useless material. The sheep and lambs purchased were in store to poor condition, and came mostly from the Western States, and, speaking generally, the type of country obtaining there is not suitable for fattening purposes. As time progressed this method of feeding was discontinued, as other uses were found for the screenings, which caused the price to soar to prohibitive levels. Then came what was known as farmer feeders, who built big barns or feeding houses in which to feed their flocks. On these farms the manure was found to be very valuable in restoring the fertility of the land which had been exhausted by continued cropping with wheat, &c. On such farms sheep-feeding has reached a very high standard, and the growing of crops and corn for feeding purposes is now part and parcel of the system of rotation in certain areas. The conditions in the United States of America are, of course, different from ours, yet it is interesting to observe the methods followed there. The main difference is that with us lambs are raised on pasture, while in America they are hand-fed or house-fed.

Fat lamb raising is practised throughout Victoria on areas that are suited to this form of sheep husbandry. If it be adopted there are certain fundamental principles which should be followed, though, of course, these must not be too rigorously applied in all circumstances.

Purchase of Ewes.

We have now to consider another side of the subject, namely, purchase of ewes.

They should be "framy" and have plenty of room, as constitution is denoted by size of carcass. Any ewe with a lengthy frame, also good width and depth, will have the necessary feeding and breeding room. Feeding room is necessary in order to provide an ample milk supply, which is of vital importance to the welfare of the lamb, and breeding room is necessary to assure a "growthy" well-set lamb. It has been proved that first-cross ewes mate splendidly with the Downs family of rams, while the closer-woolled sheep nick better with the long-woolled family. The wool-producing properties of a flock of ewes to be utilized for lamb-raising also comes into the question when making the selection. A nice framed flock growing wool of uneven type and inferior quality costs as much to graze as one capable of producing good wool. Good wool is denoted by length of staple and character, which in turn is denoted by crimp—crimp being the undulations or waves seen on the wool fibre—as well as density and type.

It is also desirable that the breeding ewes should be even in type as a flock, but it is difficult to obtain such ewes in small lots. But where a group of six or eight farmers each requires a small flock—100, or even less—they could combine and purchase one lot of 600 or 800, and thus be able to obtain station-bred ewes on one mark of uniform size and quality.

In the purchasing of ewes it is of importance to give consideration to age. It is admitted that the old ewe makes the better mother, but that is not the only matter to take into account. Experience shows that the greatest profit lies in making a purchase of young ewes, obtaining as many lambs as possible from them, shearing them as often as possible, and then, when favorable seasonal conditions allow, selling them off as fats. A fresh lot may then be purchased. Though old ewes make the best mothers, it must be remembered that they will not stand the privations following on a drought nearly so well as young ones.

Selection of Sires.

The next question is that of the selection of a sire. Not only should purity, type, &c., be considered, but the question of breed also. Many times have I been asked this question, "What breed do you recommend for fat lambs?" I do not think that it can be claimed for any breed that it is the best for the production of lambs. Some breeds will, of course, thrive better than others in certain districts. Many people's preference for a particular breed is a matter of experience—either their own or that of a fellow farmer.

For the earliest-maturing lamb, the British Downs family ranks foremost—the Southdown, Shropshire, Dorset Horn, Suffolk, or Ryeland. The Dorset Horn and Ryeland cannot be strictly classed as Downs; "Semi-Downs" would, perhaps, be a better classification. The most important characteristic of the Downs, from an economic point of view, is the quality of carcass and mutton. None of these breeds readily becomes too fat, even though they attain great weights; further, their mutton is of superior quality, being firm, fine in the grain, and rich in colour.

Where feeding is absolutely satisfactory, the Down rams will sire what might almost be called the ideal type of fat lamb. However, the wool of this breed is inferior, the fleeces being light, comparatively short in length, hard and harsh in the handle, and, therefore, devoid of good manufacturing properties. Owing to this characteristic, the Down breeds are not profitable if the lambs have to be carried over, shorn, and sold as stores. Another reason why these breeds are not always desirable is that, in order to obtain good results from them, the best of feed must be given.

Perhaps the solution of the problem is the use of early-maturing rams possessing wool-growing characteristics. The chief of these long-woolled breeds, as far as Australia is concerned, are the English Leicester, Border Leicester, Lincoln, and Romney Marsh. They are characterized by the absence of horns, great size, and long wool usually possessing the silvery, glistening appearance known as "lustre." These breeds are, as a rule, quick growers, and are easily fattened, but the mutton is a little coarser in grain than that of the Down breeds. Throughout some portions of the Mallee, the use of the Corriedale, an Australian breed of sheep, as a sire has brought about the production of a satisfactory type of lamb.

The desirableness of obtaining a pure-bred ram cannot be too strongly emphasized. Such an animal will sire infinitely better lambs than a mongrel, crossbred, or nondescript animal. In order that the buyer may safeguard himself, he should, if at all practicable, obtain a ram only from a registered flock-owner.

The ideal sire for the production of fat lambs possesses the following characteristics, which the purchaser should bear in mind when making a selection:—

1. A wide, deep, lengthy frame, compact and well balanced, the sheep to be set square on his four legs.
2. A head thoroughly masculine in character. As the head is a valuable indicator of the "type", it should receive special attention.
3. The chest broad, deep, and well moulded.
4. The back line straight, level, and broad, covered with a thick firm-handling flesh. Any sire with a thick farm-handling flesh is capable of siring a better class of lamb. Where possible avoid rams with loose flabby flesh.
5. The ribs well sprung and deep.
6. The hindquarters should be well carried out, long, deep, and square, not dropping much towards the tail.
7. The leg of mutton full and plump.
8. The legs straight and set wide apart.
9. The characteristic wool of the particular breed should be of good quality, and cover the whole body well and evenly.

While, of course, one cannot pick flock rams having all these distinctive qualities, one can keep the ideal sire in mind, and try to select as near as possible to the set standard.

Mating.

Times of mating are controlled by the influence of climate and pasture, and it is a mistake to lamb in any district except at such times as conditions make desirable. A sufficient number of rams must be used;

when fixing the number their ages should be considered. Another aspect of this question is that it is not desirable that the period of lambing be spread over too long a period of time; the larger and more even the line of lambs marketed, the greater will be the return. If at joining time any sluggishness in the rams is noticeable, the sheep should be yarded at night, and the rams raddled or marked by some means. In no circumstances should rams be left with the ewes throughout the year; if such were the practice there would be lambs of all ages and sizes in the flock.

It is of the greatest importance to keep lambs growing from the time of birth, and such being the case, the sowing of fodder crops is recommended; at any rate, a farmer should always be in a position to take his flock from the lambing paddock to better pastures. In order to lessen the chances of any setback, lambs should be marked while still young; if the operation be delayed, the check may be severe. It is not wise to wait until all the ewes have lambed; the lambs may be marked in batches as they become a few weeks old. This practice takes more time, of course, but pays in the long run. Marking should be carried out under clean conditions. Temporary yards, set up in the lambing-down paddock, are of great benefit, and all possible cleanliness should be observed.

SOWING PERMANENT CROPS.

PREPARING THE GROUND.

By L. C. Bartels, B.Agr.Sc., Senior Irrigation Officer.

The present season is a most favorable one for establishing permanent crops in the irrigation districts, and the purpose of this article is to urge farmers to pay due regard to the preparation of the land before sowing. Permanent crops include lucerne and pastures; preparation of the land refers to grading for irrigation and the production of a good seed-bed.

It is regrettable that among irrigationists generally there is not a proper recognition of the importance of these two factors and their influence. Of course, the attention given to grading soon becomes apparent from the way in which irrigation water is distributed, but farmers will blame the soil, the season, or in fact anything rather than their methods, if they do not succeed in getting a good germination and early development of lucerne, grasses, and clovers. Yet far too often the primary cause of failure is the lack of sufficient preparation of the soil.

It is generally conceded that the methods of our Victorian wheat-farmers are of a very high standard, but they were not always so. The evolution of present-day practices has been due mainly to the development of cultivation methods. In the Wimmera there are fields fallowed in February and March of last year that will not be sown

till June of this year. In that period they have received constant attention, though the wheat crop to be sown will occupy the ground for five or six months. The irrigation farmer, on the other hand, hopes that the lucerne and pastures which he sows this year will be good six years or ten years hence. But actually some settlers are ploughing up land now after it has borne a crop of millet or sorghum and propose sowing it immediately with lucerne or pasture.

It is not suggested that land on an irrigation block should be followed for fifteen months, but if extended preparation is given to it for, say, four to six months, fewer failures will be heard of.

The objection is raised that land on an irrigation block is too valuable to be left unproductive for long, but the fact is that it is too valuable for half crops, unproductive crops, and the abortive attempts at establishing permanent crops, which are common.

A Buckboard in use on the Swan Hill Flats.

It is better to give proper attention to a small area than indifferent attention to a larger area, and it will be effectively demonstrated that even when seasons are adverse, failures will be few if the seed is put in on a good seed-bed.

The objective of the irrigation farmer should be to so prepare his land that the seed is sown on a warm, moist, clean, and compact seed-bed, and so graded that the resulting crop may be watered evenly during its growth, with a minimum of trouble. This first cost will be amply repaid—probably in the first season.

Grading the Land.

Let us first consider the grading of the land. Grading means the reduction of the land to a plane surface, so that water may be distributed over it by flooding with as little waste as possible. Under natural conditions the land surface is rarely such as to permit this

without some alteration. Water can be made to cover the land only by extra labour, and then, unless care be taken, some places will be in such a condition that they will get excess and other places too little. The farmer will be repaid for care in grading; production will be increased, there will be less waste of water, less labour on irrigation, and crops will be even.

It is inadvisable to sow permanent crops on virgin land. The first grading of such land will rarely be permanent, and it is better to precede lucerne or grasses with some annual crop. Later, when the land has settled, and there is a chance that the levels obtained by grading will be maintained, permanent crops may be sown.

An Improved Buckboard at Nanneella.

Lucerne and grasses are almost always watered by flooding, and the water is distributed by small channels and let out at intervals till the ground is covered. Of course, the location of the channels and the flow of water is governed by the slope of the soil surface, and grading and check-banking are adopted to provide plane surfaces over which the water will run evenly.

The small distributing channels may run in the direction of the contours; they may be made directly across the direction of greatest slope, or they may be placed at intervals down the greatest slope. The so-called border system is in general use. In this method of

irrigation the distributing channels are across the slope—usually following fence lines if possible, and small parallel banks are erected down the slopes to confine the water on strips. These strips of land or bays are levelled from side to side, and when the water is released at the top of the bay it should move down the bay, spreading evenly from side to side. The width of the bays is governed mainly by the side-fall.

If there is a marked slope to the side as well as down the direction of greatest slope, narrow bays will be better. In them less earth need be shifted to make the bays level across, but while check-banks facilitate watering, they are to some extent obstructions to implements, and therefore it is not usual to construct more of them than necessary.

A Useful Type of Grader.

The size of the bays will depend on the texture of the soil, the slope, and the head of water which can be used. For lucerne, where grades are slight or where the land has what is called a flat grade, the bays should not be long, but if there is a big fall in the land the water will flow rapidly, and long bays may be necessary to secure sufficient penetration. In porous soils there may be waste at the head of the bays through excessive percolation while the water is travelling to the other end. Usually banks are placed from ¼ chain to 1 chain apart, and the bays may be from 3 to 15 chains long.

The first step in grading is to determine the configuration of the land surface by a contour survey. Contour lines on a plan join points of similar levels, as the edge of a sheet of water would if it were raised to successively higher levels—round a hill for example.

In our irrigation settlements contour surveys have been made by the State Rivers and Water Supply Commission.

When the ground has been ploughed and broken down, bumps must be razed and hollows filled. This is usually done with a buckscraper or a buckboard—both most useful implements when much soil has to be shifted. Filling for channels is carried into position, and when this first work is complete the position of the check-banks is marked, usually by ploughing a furrow and crowning it. The buckboard or the buck-scraper may be used in carrying earth to build the banks, and in levelling the bays from side to side; it is taken from the higher side of the bay to the lower side. In some districts care is necessary to see that too much surface soil is not removed, and if there is a big sidefall to be corrected the banks should be close together, or they must be put up diagonally on the field.

Another View of the Grader.

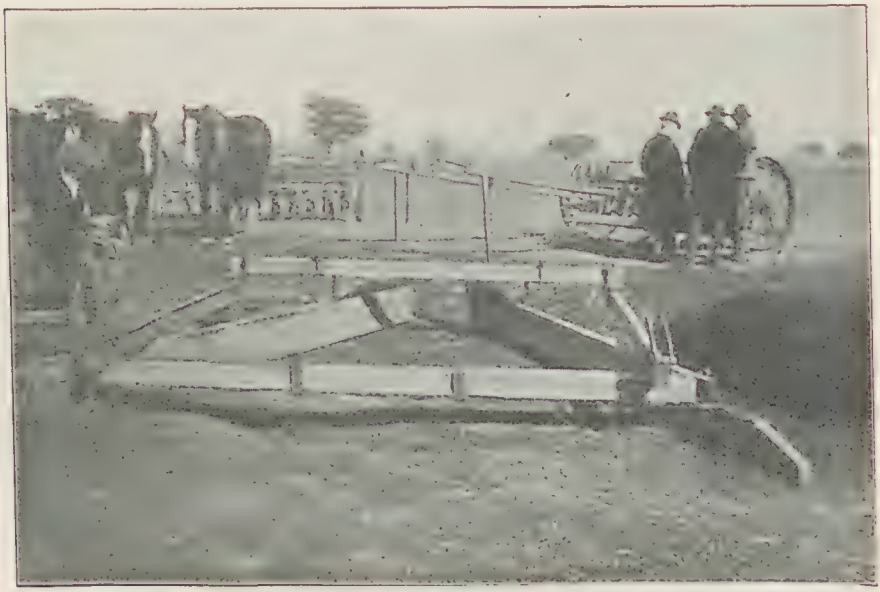
Implements for Grading.

A short description of the implements used in grading will not be amiss. They include the simple buckboard, the buckscraper, the slicker, and the more elaborate grading machines of various makes, such as the road grader, &c.

The buckboard is simply a flat board 1½ inches thick, varying in width from 10 to 21 inches, and from 6 to 8 feet in length. It is shod with iron on the bottom edge, which is usually bevelled. It is a scraper, and the amount of soil it will pare will depend on the angle at which it is held. This is governed by a long handle, to which a rope is affixed. When the handle is pulled down, the scraper bites into the ground and gathers earth; when the board is vertical it rides on the surface of the ground, but it will push a considerable bulk of earth in front of it. When the top edge of the board is allowed to incline forward, the earth begins to slip from beneath, and may be dumped at any particular place by releasing the handle suddenly so that the

board rides on its face. The scraper is then pulled back to the cutting position by the rope and handle. This is a simple implement, not very costly, and any farmer after a little experience will do good work with it. With hoops or rounded bands of iron like a bow on the front ends of the board, the tumbling is more easily controlled.

The buckscraper is a big scoop. It may be made wholly of iron, or it may be partly wooden, but the front edge must be of iron. Generally it is fitted with iron bows and provided with iron skids beneath. It is a most useful implement in the hands of a skilled operator, and by it large quantities of earth can be transported for the levelling of the land, for the building of checkbanks, or for filling channels. Its action is controlled by a long handle, and the bite it makes and the rate at which it drops its load are determined by the position of the handle.



A "V" Crowder.

The slicker is another rather simple instrument which has done good work.

An advance on these simpler grading implements are the louvred graders, which have a long framework with cross pieces arranged louvre-fashion.

The Preparation of the Seed-bed.

The condition of the seed-bed laid down as being desirable for lucerne and pastures will be most easily obtained if the ground is fallowed for a few months. Fallowing does not mean to plough and leave the ground neglected till just before seeding time. The soil should be cultivated so as to close the air spaces which exist when land is in the sod, and to create a surface soil mulch. This will bring about a consolidation of the sub-surface to form a seed-bed. In this

the micro-organisms of the soil under the influence of the surface warmth and the conserved moisture will be active in elaborating plant food; weeds will find the conditions favorable, and will start into growth. These should be kept down, as, if they are not suppressed, they will use up the plant food and moisture intended for the young lucerne or clover and grasses, but of course if weed seeds germinate and the seedlings are killed the ground is thereby cleaned.

It takes time to achieve the desired condition in soils, and farmers should know that ground which is ploughed and worked down in a hurry is not likely to be properly prepared, despite the apparent niceness of tilth. There will be large air-spaces in the seed-bed which will be unfavorable to the young plant. There will be weed seeds in the clods ready to germinate and do battle with the tender seedlings of the crop, and there will be a scarcity of nitrates.

Some farmers will say that good results have been obtained without all this fuss. This may be so occasionally, but only by chance. An analysis of the practices of farmers who complain about failures nearly always reveals that they have tried to do things in a hurry, and conversely it is found that if a man gives extended preparation to his land before sowing he will get results despite unfavorable seasonal conditions.

When an old lucerne stand is ploughed up, the land is generally in good heart, and the soil works down easily to a good tilth, but the old roots, &c., make grading difficult, and it is better to interpose a cereal crop before attempting to re-establish a permanent crop. Sometimes land which has borne an intertilled crop, like maize or potatoes, may be worked up without much trouble and a permanent crop successfully established.

The unthrifty farmer may satisfy himself that grasses and clovers grow naturally without cultivation, and that careful preparation is unnecessary for their establishment, and he will instance cases of splendid fields of white clover, strawberry clover, subterranean clover, &c., which have developed naturally. But even if there is a possibility of this happening, why not hasten the happy result and achieve in one season what it will take years to bring about naturally? Then there is the man who hopes, by liberal expenditure on seed and super., to make up for deficient cultivation. If one seedling finds conditions unsuitable, is the presence of two likely to alter them? Heavy seeding will not make up for lack of preparation.

To sum up, good preparation of the soil will ensure good results, and will influence the germination of the seeds and the early growth of the plants. It is therefore the basis for the development and productivity of lucerne and pastures.

COHUNA FARM COMPETITION, 1928.

Report by L. C. Bartels, B.Ag.Sc., Senior Irrigation Officer, Department of Agriculture.

The Cohuna Agricultural Society, with a desire to promote the adoption of the best farming methods, decided some time since to institute a farm competition amongst the settlers. Knowing the part played by crop competitions in the wheat areas in improving cultural practices under dry farming, the members of the Society felt that it would do good to make analyses of the methods of the best farmers in the district, and to disseminate the information so obtained.

The rules to govern the competition were drawn up by a sub-committee, and after some amendments suggested by the Department of Agriculture, the schedule of points for judging was adopted by a conference of the Northern District Agricultural Societies.

It was intended that four inspections should be made at intervals. This was not practicable, but Mr. E. Ryland, of the State Rivers and Water Supply Commission, judged the farms in the competition on the 26th and 27th January, while Mr. J. A. Aird, of the Water Commission, and the writer made independent judgments on the 22nd and 23rd March. At the conclusion the three judges conferred, and the points allotted were averaged.

The system of judging was designed to put a premium on good methods and the farmers' efforts, rather than on natural conditions, such as fertility of soil, &c.

Five entries were received, but one (Mr. Morrison's) was withdrawn before the second inspection was made. The farms awarded first, second, and third place are comparable in that they are farmed on intensive lines; the one which received the lowest number of points allotted (Mr. Major's) was much the biggest.

Irrigation Systems.

In regard to layout for irrigation, the judges endeavoured to deal lightly with the competitors, because what might be called the traditional methods of the district still survive, and these cannot be amended at short notice. In the old days when cruder systems were employed, everything was done on a big scale. The checkbanks were levee banks, the distributing channels were canals, and irrigation was effected by damming the water rather than by making an even distribution by grading.

Points that must be considered now are—(*a*) Are there any circumstances at Cohuna which make it necessary to retain the old system? and (*b*) Are the approved methods so general now in other districts unsuitable for the Cohuna district?

The tour of inspection permitted the judges to see the old and the new practices together, and enabled them to say that the border system of irrigation modified to suit conditions, with small distributing channels, was quite effective without the defects of what is called the check system of irrigation, the method in general adoption at Cohuna. The high water-table at Cohuna, with the attendant salt troubles, is contributed to by the practice of excessive watering, and this may be connected with the methods employed.

There are some splendid lucerne stands at Cohuna, where drainage is good. Many fields have irregular stands, and on some where lucerne once flourished it can no longer be grown.

The Growth of Pastures.

A very striking feature of the district is the growth of clovers and grasses, which reflects the fertility of the land, and must have a very important bearing on the future development of the settlement. This applies to seeded pasture and to the natural development of such splendid plants as white clover and strawberry clover. Testimony was forthcoming from the competitors as to the carrying capacity of these pastures, but it is safe to say that their full value is not yet realized. Some of the points which commend them for adoption at Cohuna are (1) They are better suited for grazing than is lucerne; (2) they will grow under moister conditions than will lucerne; and (3) the check system of irrigation is not altogether unsuited to them, provided it does not mean damming the water till it percolates beyond the reach of the roots. The natural spread of grasses and clovers is an indication of their hardiness and their adaptability to the conditions of the district. The slight amount of salt in the soil at Cohuna seems to improve the growth of strawberry clover, which is a most valuable fodder.

There is still another reason why the clovers mentioned and subterranean clover, too, may be grown to advantage at Cohuna. This is the prevalence of *paspalum dilatatum*. White clover, strawberry clover, and subterranean clover grow in association with paspalum, and their spreading habits permit them to compete with it. They make good complements to the grass. Subterranean clover has big seeds, and a few scattered here and there will produce plants that in time will spread through the paspalum. White clover, too, may be established by spreading seed, and the creeping habit of the plant permits it to thicken up. Strawberry clover is most cheaply established by heeling in pieces of the creeping stems and roots, and one reason why this practice should be favoured is that the clover spreading naturally represents a strain which has found the conditions suitable.

The advocacy of seeded pastures at Cohuna is not a concession to those who are careless in the use of water. Indeed, mixed pastures demand as much attention in establishment and maintenance as does lucerne. Lucerne is the best crop, and, where conditions are suitable, it should be grown with pastures as a supplement.

Top-dressing has not been generally adopted at Cohuna, but the practice is extending, and the local evidence in favour of it is growing. The necessity for top-dressing must be emphasized, because the full value of lucerne and pastures will be realized only if manuring is carried out, and it is safe to predict that the carrying capacity of the blocks will be increased thereby.

The Competing Farms.

Mr. Stone's block was adjudged the best in the competition. He has an area of 88 acres subdivided into 14 paddocks. He carries on dairying with pigs and poultry as side lines. His stock, including 38 cows and bull, with 25 calves, were in good condition. The herd is

entered in the Herd Testing Association, but the tests have not been carried on long enough to have enabled him to begin culling his herd. The factory returns, however, were good.

Mr. Stone has his land in full production. Originally most of the block was in lucerne, but it has been grazed continuously, and has become irregular. White clover is spreading through it, and its value for grazing has encouraged Mr. Stone to sow mixed pastures of grasses and clovers, and two paddocks were successfully established last year. He considers that these pastures have twice the carrying capacity of lucerne, and, as a grazing proposition, his experience confirms that of many other irrigation-dairy-farmers. Last year he commenced top-dressing, and is convinced of its value.

A 5-acre paddock of sorghum will provide a good supplement to his lucerne and pastures, and there were to be seen in addition trial areas of broom corn, maize, sugar beet, and mangels. About 18 tons of lucerne hay and a stack of straw were in reserve.

Mr. Stone grows asparagus with very satisfactory results—the plant finds the soil and conditions at Cohuna congenial.

The fences on the block were well strained and neat, and the gates were well hung. The milking shed and dairy were very clean, and a well-kept home garden was a feature.

The land is irrigated on the rectangular check system, with channels running down the slopes. The channels are about the right size, but the checkbanks are bigger than necessary. Paspalum was growing densely on the channels, and there was a good deal of weed growth throughout.

Mr. J. Heap's block provided many interesting features. Mr. Heap is a dairyman, but his pigs and poultry are more than a side line, and the results from these have given a lead which, if followed, must have a big influence on the future development of the settlement. He has shown enterprise in purchasing high class, large White Yorkshire pigs. His attention was directed to poultry as a result of a visit of the Better Farming Train to Cohuna, and from a small outlay he has now a flock of birds from which he is making a net profit of £200 per annum. The housing arrangements for his pigs and poultry are very good.

The block maintains 46 cows and 26 young stock, besides 6 horses. The cows are of the dairy Shorthorn cross types, but a Jersey bull is now being used. Mr. Heap has tested his herd, and the results have guided him in breeding.

Of the total area of 138 acres in the block, 70 acres were originally in lucerne. Much of it has thinned out, but some is in excellent condition, and an outstanding feature was 4 acres in heavy growth. Another area in young lucerne was salty, but has been successfully reclaimed by persistent attention.

Portion of the land is laid out for irrigation on the square check system, and portion on the border system with banks 1 chain apart. Mr. Heap agrees that the latter method is preferable if it can be used.

No cereals are grown on the block, but there were about 20 tons of lucerne hay in reserve, portion of which was of excellent quality. Clovers were developing through the thinned-out lucerne, strawberry

clover being very conspicuous. Couch grass was in abundance, and made luxuriant growth, but there was also a profusion of weeds like chicory, burrs, etc.

Mr. C. Schier's home block has an area of 67 acres, but he has 320 acres adjoining on lease. At the last inspection he was carrying 600 sheep, 15 horses, 8 cows, 14 pigs, and a small flock of poultry. He has 25 acres of very good lucerne irrigated by the border method, and its uniform appearance reflected a regular distribution of water.

Side by side with small channels, which were clean, were the unnecessarily big channels of an older system, and Mr. Schier is emphatic that the newer methods are quite adequate. Natural pastures occupied a portion of the block.

Mr. T. Major, one of the older settlers, has an area of 318 acres, and his position in the competition was determined by the fact that with so much land his methods are less intensive than those of other competitors. At different times 200 acres have been under cultivation, and in earlier days the land bore heavy crops of lucerne, but the older lucerne has given place to paspalum, white clover and ryegrass. About 60 acres of this mixture provides a profusion of feed for a dairy herd of 50 cows. Portion of this pasture is now top-dressed every year.

The cows are being tested, and Mr. Major is building up his herd guided by a knowledge of the different cows and their butter-fat records. A large number of pigs are carried too.

Mr. Major is a keen horse-breeder. The farm is well equipped with buildings, including milking shed, stables, garage, smithy, and pigstys. Seventy tons of hay was in stacks, and an area of 20 acres of fallow was in preparation for sowing oats.

Schedule of Points Awarded.

—	Maximum Points.	Mr. Stone.	Mr. J. Heap.	Mr. C. Schier.	Mr. T. Major.
1. General layout of ground for irrigation ..	50	35	34	41	31
2. Percentage of land under fodders ..	40	37	29	23	20
3. Results from herd testing, and general condition of stock ..	35	30	32	27	33
4. General control of water, including state of irrigation ditches ..	25	14	14	17	12
5. Conservation of fodder	22	18	18	18	18
6. Fences	18	15	13	13	11
7. Farm buildings ..	18	14	17	11	14
8. Absence of weeds ..	15	10	9	11	10
9. Care of implements ..	10	6	6	8	6
10. General appearance of immediate surroundings of dwelling	10	9	7	5	6
11. Poultry and pigs ..	7	5	7	3	4
Totals ..	250	193	186	177	165

Although the number of entries received was comparatively small, it is felt that a good beginning has been made, and, by the interest shown throughout the district, that future farm competitions conducted on similar lines at Cohuna will attract more entrants.

WESTERN DISTRICT WHEAT YIELDS.

EXPERIMENTS AT WILLAURA.

By H. A. Mullett, B.Ag.Sc., Superintendent of Agriculture.

Years ago a considerable area of wheat was grown in the Willaura district, but gradually increasing areas were devoted to grazing. To-day wheat is coming back into favour, and with the object of assisting growers to determine the best varieties for their conditions, and the most profitable quantity of manure to apply with the seed, the Department of Agriculture has been conducting a series of experimental plots on the farm of Mr. J. Shalders in that district.

The results of the variety trials for 1927 season are as follow:—

	Yield. Bushels per acre.
Ghurka	28.8
Federation	28.5
Yandilla King	28.4
Free Gallipoli	28.0
Major	26.5
Sepoy	25.8
Nizam	25.2
Turvey	23.3
New Crossbred (Penny x Currawa)	20.5

With the exception of Ghurka and the new crossbred, these varieties have now been under test in the Willaura plots for a period of three years. The average yields over this period are shown in the following table:—

	Average Yield 3 Years. Bushels per acre.
Free Gallipoli	28.8
Federation	28.2
Nizam	27.5
Yandilla King	27.3
Sepoy	26.1
Major	26.1
Turvey	24.9

The outstanding feature of the variety trials is the comparative failure of Turvey, a variety which has long been popular in the Western District. The tests show definitely that this variety is inferior to wheats like Free Gallipoli, Federation, and Yandilla King, and there is

no reason why growers should not discard it for one or other of these more prolific varieties. Ghurka has given most promising results for the past two seasons, and a further test will be awaited with interest.

The manurial trials consist of 12 plots, each ½ acre in area. These were sown on May 23 and 25th with 73 lbs. of dry pickled seed per acre. The results for 1927, with the average yields for the past three years, are as follow:—

Treatment.	Yield 1927. Bushels per acre.	Three years' aver. 1925-6-7. Bushels per acre.
No manure (2 plots)	14.8	17.1
Lime, 20 cwt. (1925)	16.7	18.6
Bone Fertilizer, 1 cwt.	21.4	21.1
Basic Phosphate, 1 cwt.	26.3	27.0
Super., 1 cwt. (2 plots)	26.3	27.3
Super., 1 cwt., and Lime 20 cwt., 1925 ..	27.5	29.1
Super., 1½ cwt.	28.3	—
Super., 2 cwt.	28.4	28.1
Super., 1 cwt., and Gypsum 20 cwt., 1925 ..	28.7	29.0
Super., 2 cwt., and Lime, 20 cwt., 1925 ..	30.6	30.8

The land on which these tests were carried out is a clay soil with buckshot typical of much of the country to be found in the surrounding district. The results from the various fertilizers on this soil have been in conformity with those obtained on the previous experimental plots at Willaura, which were located on a sandy loam. The average yields of the two sets of plots for a period of eight years are shown in the following table:—

Treatment.	Eight years' average. 1920-1927. Bushels per acre.
No manure	11.3
Bone Fertilizer, 1 cwt.	15.7
Basic Phosphate, 1 cwt.	20.8
Super., 1 cwt.	22.0
Super., 2 cwt.	23.4

The results indicate that, as in other wheat-growing districts, superphosphate is the most effective manure. As to the amount that should be used, it would appear that the maximum profit is obtained from a dressing of between 1 cwt. and 2 cwt. per acre. Two years ago a dressing of 1½ cwt. per acre was tried for the first time, and from the yields from this plot, together with the 8 years' averages of the 1 cwt. and 2 cwt. super. plots, the deduction can be drawn that this is the optimum amount of super. to apply to the wheat crop at Willaura.

The experiments show conclusively that superphosphate is superior to basic phosphate, while bone fertilizer does not increase the yield to anything like the same extent. Slight increases in yield have been obtained by the use of lime and gypsum in conjunction with super., but so far, the extra yield has not been sufficient to warrant the additional expenditure incurred in applying either of these soil amendments.

SALISBURY EXPERIMENTAL PLOTS.

RESULTS FOR 1927.

At one stage of the year it looked as though crops in the Salisbury district would return well over average yields; early in the spring the great majority looked particularly well. Throughout the winter months sufficient rain fell to maintain a splendid growth, but at no time was the fall heavy enough to give the subsoil a thorough soaking. In September, however, a severe frost was experienced throughout the Wimmera; this was followed by severe hot winds, causing considerable damage to many crops, including those on the experimental plots conducted by the Department of Agriculture on the farm of Mr. E. W. Dahlenburg. For a few days it seemed that the experimental plots were beyond hope, but they recovered and survived the hot dry weather that followed right up to harvest time. From the 1st September to 31st October only 48 points of rain were recorded on Mr. Dahlenburg's farm. Later rains, however, enabled the crops to finish off better than had been expected, and the yields obtained are regarded as very satisfactory considering the adverse season.

These plots have now been in operation for seven years, and are looked upon as a very reliable and valuable source of information to wheat-growers in the Nhill and surrounding districts.

At Salisbury the annual rainfall for 1927 was only $8\frac{1}{2}$ inches, while in the two preceding years the total falls registered were—1926, 11 inches, and 1925, $8\frac{3}{4}$ inches. Over the past 25 years the average rainfall was 16 inches, so that in the three years just past the rainfall amounted to only 27 inches instead of 48 inches. Despite that considerable handicap fair yields were harvested this year, not only on the plots, but throughout the district generally. That good returns were obtained under such unfavorable conditions constituted a remarkable tribute to the modern methods adopted by growers.

Wheat Variety Trials.

In the variety trials Rajah was at the head of the list with a yield of 22.8 bushels per acre. The new crossbred "Currawa x Major x Gallipoli," which topped the yields in 1926, did well again this year and yielded 18.9 bushels per acre. With Wannon the same figure was obtained. Another Werribee crossbred (Indian F x Federation) gave a return of 18.8 bushels per acre. Free Gallipoli, which has done consistently well over the past five years, was low down on the list this season, but still gave an appreciably better yield than Federation.

The average yields for the last five years show Free Gallipoli on top with an average of 38.7 bushels per acre, with Rajah second, Nizem third, Wannon fourth, and Federation at the bottom of the list. The

actual yields obtained last year, and the averages over five years are as follows:—

Result of 1927 Trials.

Eight plots, each one-third acre, sown 23rd June with 75 lb. seed and 1 cwt. superphosphate per acre. Seed dry pickled with copper carbonate.

	Yield 1927. Bush. p.a.
Rajah	22.8
New Crossbred (Currawa x Major x Gallipoli)	18.9
Wannon	18.9
New Crossbred (Indian F x Federation) Ranee Selection	18.8
Nabawa	17.9
Nizam	17.6
Free Gallipoli	17.5
Federation	16.9

Average Results for the Five Years—1923 to 1927.

	Bushels per acre.
Free Gallipoli	38.7
Rajah	37.8
Nizam	37.3
Wannon	37.2
Federation	34.7

Manurial Tests and Summer Fallow.

In previous years the manurial trials were conducted in conjunction with a test to determine the best time of sowing. They demonstrated conclusively that the late sowing found beneficial on the Horsham plains was not profitable under the conditions obtaining at Nhill, and last season the time of sowing test was replaced by a comparison of summer and winter fallows. The plots were duplicated as before. In one series the various manures were applied to summer-fallowed land, while in the other similar manures were sown at the same time on winter fallow. The variety of wheat used was Federation. This was dry pickled, and sown at the rate of 75 lb. per acre. The results this year were upset by the advent of hot winds at a critical juncture, and the wheat on the liberally-manured plots and on the summer-fallowed land was adversely affected. The land summer-fallowed gave little or no increase in crop yield, and the unmanured plots actually out-yielded those manured.

Although similar tests were carried out at Carwarp and at Longerenong, the crops on summer-fallow were markedly superior to those on winter fallow, and this is equally true of the comparison between the wheat liberally manured and that unmanured. At Longerenong last year the wheat on eight plots summer-fallowed returned 10 bushels an acre more than that on winter fallow.

The discrepancy in the yields at Salisbury is due probably to the fact that the unmanured plots were later in maturing than those to which super. had been applied, and consequently at the periods when frosts and later hot dry winds occurred they were no so badly affected as the further advanced crops which were then in ear.

Gypsum Trials.

Two years ago tests were included to determine the effect of gypsum in ameliorating the texture of the stiff red clay soils which occur in patches throughout the Wimmera. Last season encouraging results were

obtained, the plots treated with gypsum giving substantially higher returns than those not so treated. To determine the residual effect of the gypsum, the same plots were sown this year in oats. In such case the dressings of super. were repeated, but no further gypsum was applied. The results were just as marked as in the first year, the untreated plots giving an average yield of only 4.8 bushels per acre while, where 20 cwt. of gypsum per acre had been applied, the average yield was 11.95 bushels. With 30 cwt. of gypsum per acre the average yield was 15.45 bushels, and with 40 cwt. of gypsum 16.0 bushels an acre. The yields for the two years were as follow:—

GYPSUM TRIALS.

Oats on wheat stubble—showing residual effect of gypsum.

Seven plots, each one-third acre; sown 23rd May with Algerian oats, 60 lb., and superphosphate, 1 cwt. per acre. Gypsum applied early in May, 1926.

—	Wheat Yield 1926.	Oat Yield 1927.
	Bushels per Acre.	Bushels per Acre.
Super. 1 cwt.	19·9	4·6
Super. 1 cwt., gypsum 20 cwt.	25·0	10·5
Super. 1 cwt., gypsum 30 cwt.	24·9	15·5
Super. 1 cwt., gypsum 40 cwt.	25·9	16·0
Super. 1 cwt.	19·6	5·0
Super. 1 cwt., gypsum 20 cwt.	24·9	13·4
Super. 1 cwt., gypsum 30 cwt.	24·1	15·4

A second series was commenced last year to further try out combinations of super. and gypsum in the same quantities as used in the test detailed above. In one case the gypsum was drilled in at seeding time, but in the second series it was applied in spring 1926. The results of these plots, which were sown to wheat, are shown in the following table, together with the yields from the 1926 plots.

Wheat on well-worked fallow.

Eight plots, each one-third acre; sown 23rd May—seed, 75 lb. per acre; super., 1 cwt. per acre. Seed pickled with copper carbonate. The gypsum for 1927 plots was applied in spring 1926.

—	Yield, 1926.	Yield, 1927.	Average, 1926–27.
	Bushels per Acre.	Bushels per Acre.	Bushels per Acre.
Super. 1 cwt.	19·9	10·5	15·2
Super. 1 cwt., gypsum 20 cwt.	25·0	14·3	19·7
Super. 1 cwt., gypsum 30 cwt.	24·9	11·7	18·3
Super. 1 cwt., gypsum 40 cwt.	25·9	15·6	20·8
Super. 1 cwt.	19·6	10·8	15·2
Super. 1 cwt., gypsum 20 cwt.	24·9	13.6	19·2
Super. 1 cwt., gypsum 30 cwt. (at seed time)	24·1	15·1	19·6
Super. 1 cwt.	..	11·9	..

Though the increases were not so marked this season as last year, the results were sufficiently promising to indicate that gypsum offers a profitable means of increasing the productivity of these stiff red clay soils.

Replicated Plots.

In order to obtain more accurate comparisons between the yields of different varieties, a series of experiments was established under what is known as the replicated plot system. Under this system the original plots, each one-third of an acre in area, were subdivided into a number of strips, interposed between each of which was a strip of the standard variety as a check. These strips were harvested separately, and by a systematic comparison it was possible to ascertain the degree of accuracy of the experiment, as well as to overcome the effects of any slight irregularities of soil. This is the first year in which this system has been put into practice, and the results have been awaited with great interest.

The results of one year's trials cannot be taken as indicating definitely which are the superior varieties, but they do show, with the greatest accuracy possible, which varieties were the best for the season experienced last year. In the comparison of Federation and Wannon, for instance, the yields of the latter were, in each case, better than those of the former variety, and the difference was very much greater than could be accounted for by probable experimental error. It may be taken then that for a season such as was experienced in 1927, Wannon is definitely superior to Federation. With Nizam, on the other hand, though the yields were better than those from the Federation check plots, the difference was not sufficiently greater than the probable experimental error to be significant. Free Gallipoli also could not be regarded as definitely better than Federation for such a season. Free Gallipoli, Sepoy, and Ghurka all proved superior to Yandilla King. These results confirm the ordinary variety trials, in which Wannon gave an increased yield of 2 bushels per acre over Federation, while Nizam and Free Gallipoli were less than 1 bushel per acre better than Federation.

MALLEE WHEAT-GROWING METHODS.

OFFICIAL TESTS AT CARWARP.

During the past twelve years various experiments in wheat growing have been carried on by the Department of Agriculture at the farm of Mr. P. G. Stewart, M.H.R., at Carwarp. Included in the experiments are tests to determine the most prolific and suitable wheat and oat varieties for Mallee conditions, the most profitable quantity of superphosphate to apply to the crop, and the optimum rate of seed to sow per acre. In addition the merits of different kinds of soil treatment are being compared in a series of cultivation trials; these deal with early and late fallowing, well maintained and neglected fallows, depths of cultivation, &c.

The very low rainfall experienced during 1927, and indeed during the two previous years also, caused the failure of many of last season's Mallee crops. While the experimental plots did not suffer to the same extent, they were of course affected by the abnormal conditions, and the yields were considerably lower than usual. At the same time comparative results were obtained, and some interesting facts elucidated.

Wheat Variety Trials.

Twenty-four plots, each ¼ acre, sown 29th and 30th June. Seed 55 lbs., and superphosphate 80 lbs. per acre. Dry pickled with copper carbonate 2 ozs. per bushel.

Yields 1927.

	Bushels per acre.
Mogul	8.0
Free Gallipoli	7.9
New Crossbred (Ranee x Rajah)	7.9
Rajah, Selection 228	7.6
Sepoy	7.5
Ghurka	7.5
Federation	7.5
Nizam	7.4
New Crossbred (Ind. F. x Federation)	7.4
Mac's White	7.3
Federation	7.3
Rajah	7.1
Confederation	7.1
Ranee	6.9
Federation	6.7
Federation	6.7
New Crossbred (Curr. x Mayor x Gallipoli)	6.4
Currawa	5.6
Merredin	5.6
Federation	5.5
Yandilla King	5.2
Nabawa	5.0
Bena	4.9
Wandilla	4.0

Average Yields for 5 Years 1923-1927.

	Bushels per acre.
Sepoy	18.6
Ghurka	18.5
Confederation	17.9
Yandilla King	17.7
Free Gallipoli	17.6
Ranee	17.3
Mogul	17.1
Mac's White	17.0
Rajah	16.9
Nizam	16.7
Currawa	16.5
Federation	15.1

The results of one year only are not regarded as a sufficient guide on which to base farming operations. On the other hand, the average results over a period of years can be taken as indicating what is likely to be the most profitable practice. In regard to the best varieties for conditions similar to those obtaining at Carwarp, the average yields in the plots for 5 years (1923-1927) show that the leading varieties, Sepoy

and Ghurka, are ahead of Currawa by 2 bushels per acre, and of Federation by over 3 bushels per acre. Sepoy and Ghurka, however, are short wheats, and consequently not very suitable on new ground on which Mallee shoots have not been eliminated. Where the ground is clear of shoots both wheats do well throughout the Mallee.

Confederation, Yandilla King, and Free Gallipoli are taller wheats and are more suitable for the newer areas. The early ripening wheats, Mac's White and Rajah, are not quite so prolific, but can be used to advantage. Mac's White being long in the straw is very suitable for "shooty" country, whilst both these varieties might be used on a small portion of the area sown on older country, in order to help spread the work at sowing and harvesting.

A new selection of Rajah has been developed by the Department, and will in future be used instead of the old strain.

Replicated Variety Tests.

With the object of obtaining much more accurate comparisons than are possible with the method of testing usually employed, a special test (replicated test) was undertaken with Free Gallipoli, Yandilla King, Sepoy and Ghurka. In this case, Yandilla King was used as the check, and comparisons were made with Free Gallipoli, Sepoy and Ghurka.

A study of the results indicates that under seasonal conditions similar to those experienced at Carwarp last year Free Gallipoli was definitely superior to Yandilla King. Four Yandilla King plots gave an average yield of 5.8 bushels per acre, while the Free Gallipoli plots averaged 7.5 bushels per acre. The difference in yield of about 100 lbs. per acre between the two varieties is regarded as a significant one.

In the case of Sepoy also there was a definite superiority over Yandilla King, although the difference in this instance was not so great as with Free Gallipoli. In these plots the Yandilla King averaged 5.7 bushels per acre, and the Sepoy 6.7 bushels, a difference in favour of Sepoy of 60 lbs. per acre. Ghurka also gave better yields than Yandilla King, the average difference between these two varieties being 50 lbs. per acre.

These results confirm those obtained from the ordinary variety trials in this season, but it should be pointed out that the tests must be repeated over a period of at least three years before any differences that may be due to seasonal variations can be eliminated.

Wheat Manurial Trials.

Eleven plots, each 1 acre, sown on 2nd and 3rd July with Federation wheat at 55 lbs. per acre, pickled with copper carbonate 2 ozs. per bushel.

Yields, 1927.

	Bushels per acre.
No manure	1.9
Super. 30 lbs.	3.5
Super. 60 lbs.	4.2
Super. 90 lbs.	5.5
Super. 120 lbs.	4.8

Average Results for 12 Years (1916-1927), showing Increase due to the use of Superphosphate.

Quantity.	Average Yield per acre 1916-1927.	Increase over no manure.	Value of Increase at 5s. bushel.	Cost of Super. at £5 10s. per ton.	Net Profit per acre due to use of Super.
	Bushels per acre	Bushels per acre	s. d.	s. d.	s. d.
No Manure	10·5	..	..	..	..
Super 30 lbs. per acre ..	13·1	2·6	13 0	1 6	11 6
Super 60 lbs. per acre ..	13·9	3·4	17 0	3 0	14 0
Super 90 lbs. per acre ..	14·6	4·1	20 6	4 6	16 0

The above results are in accord with the results of manurial trials carried out in different Mallee districts for a number of years, in that they show that on well-prepared fallow land 90 lbs. of super. is the most profitable dressing to use.

The great assistance superphosphate can give to the wheat plant in helping it to combat weeds was illustrated plainly on the above plots this year. The unmanured area was thickly studded with the weed Bladder Wort, whilst the adjoining manured areas were practically free from it.

Cultivation Trials.

Fourteen plots, each ½ acre, sown with Rajah wheat on July 4th and 5th. Seed 55 lbs., and super. 80 lbs. per acre. Dry pickled with copper carbonate.

	Yield. 1927.	Aver. Yield. 1925-26-27.
	Bushels per acre.	
Summer Fallow—		
*Ploughed February—cultivated winter ..	6.1	12.4
Ploughed March—re-ploughed winter ..	4.7	12.3
Ploughed March—cultivated winter ..	4.4	12.1
Cultivated March—cultivated winter ..	4.7	12.7
Winter Fallow—		
Ploughed July 2in. deep	4.1	11.7
Ploughed July 3½in. deep	4.5	12.6
Ploughed July 6in. deep	4.0	12.3
Ploughed July—cultivated deeply	3.0	11.5
Ploughed July—cultivated dry	2.3	10.7
Ploughed July	3.2	11.8
Ploughed late (October)	0.6	9.6
Ploughed July 3½in. and neglected ..	0.7	8.5
Ploughed July 3½in. and neglected ..	0.4	8.5
Ploughed just before seeding (non-fallow) ..	0.1	6.0

* Corresponding plot in 1926 was ploughed February and re-ploughed winter, and in 1925 was ploughed March and cultivated winter.

Except where otherwise stated, depth of ploughing was 3½in., and fallows were spring-toothed and harrowed as required after rain to maintain mulch 2½in. deep.

The outstanding feature of these trials in 1927 was the superiority of the earlier and better worked plots over those on which the workings were below standard, and this is in conformity with the results obtained throughout the wheat belt.

Further time is necessary to satisfactorily settle such questions as depth of ploughing, &c.

Rate of Seeding Tests.

Four plots, each ¼ acre, sown 1st July with Rajah wheat at varying rates; super. 80 lbs. per acre. Seed pickled with copper carbonate 2 ozs. per bush.

	Yield 1927. Bushels per acre.	Aver. 1925-26-27. Bushels per acre.
45 lbs. per acre	4.9	13.9
60 lbs. per acre	4.8	14.2
75 lbs. per acre	5.5	14.4
90 lbs. per acre	5.4	13.8

On the average, little difference in the yield has been obtained from the varying sowing rates, but it appears probable that about 60 lbs. to the acre is the optimum amount to sow on well prepared fallow.

Oat Varieties.

There is general agreement that an oat especially adapted to Northern Mallee conditions has yet to be evolved. The tests so far appear to indicate that early varieties such as Lachlan, Mulga and Sunrise are promising, but none of these is likely to entirely supersede Algerian.

Oat Variety Trials.

Seven plots each ¼ acre, sown 1st July with 60 lbs. seed and 80 lbs. super. per acre.

	Yield 1927. Bushels per acre.	Average. 1925-1926-1927. Bushels per acre.
Mulga	4.5	—
Palestine	4.4	16.5
Sunrise	4.2	—
Burt's Early	2.9	13.8
Belar	1.7	—
Lachlan	1.4	16.1
Algerian	1.0	12.3

WHEAT EXPERIMENTS AT SHEPPARTON.

The wheat experimental plots conducted by the Department of Agriculture on the farm of Mr. T. Roe, at Shepparton, have now been in operation for five years, and the results obtained over that period give definite information as to the most suitable varieties and the most profitable quantity of fertilizer to apply in that district.

In the variety trials, for instance, Nizam, Free Gallipoli, Federation, and two new crossbreds have all given satisfactory results. The actual

yields obtained from the several varieties last year, together with the averages over four years and the last two years, are shown in the following table:—

Variety Trials.

—	Yield, 1927.	Four Years' Average, 1924–27.	Two Years' Average, 1926–27.
	Bushels per Acre.	Bushels per Acre.	Bushels per Acre.
Nizam	21·0	26·3	25·5
Free Gallipoli	21·7	26·1	26·9
Major	22·6	24·1	23·5
Federation	25·9	23·4	26·1
New crossbred (Rance x Rajah)	24·7	..	26·8
New crossbred (Ind. F. x Federation) ..	24·9	..	26·3
New crossbred (Penny x Currawa) ..	23·1	..	23·9
Sepoy	18·4	..	21·3

In the manurial trials the highest yielding plots over the five years of the test have been those to which superphosphate (1 cwt. per acre) and gypsum were applied. On one plot the gypsum was applied at the rate of 20 cwt. per acre, and on the other at half that rate. As the average yields over the five years have been the same, it would appear that the smaller dressing of gypsum has been quite effective. Where super. was applied alone, the highest yield was obtained from a dressing of 2 cwt. per acre. This plot yielded on the average approximately half a bushel per acre less than that treated with super. (1 cwt.) and gypsum. Quantities of super. above 2 cwt. per acre gave no further beneficial results. Lime also had no appreciable effect on the yields. The gypsum and lime were applied in 1923, 1924, and 1926.

The results of these tests are as follow:—

Manurial Trials with Wheat.

—	Yield, 1927.	Five Years' Average, 1923–27.
	Bushels per Acre.	Bushels per Acre.
Super., 1 cwt.; Gypsum, 20 cwt.	25·1	26·3
Super., 1 cwt.; Gypsum, 10 cwt.	23·2	26·3
Super., 2 cwt.	20·3	25·7
Super., 1 cwt.; Gypsum, 30 cwt.	23·7	25·5
Super., 1 cwt.; Lime 20 cwt.	22·3	24·8
Super., 1½ cwt.	21·7	24·3
Super., 1 cwt.	19·6	24·4
Super., ½ cwt.	17·5	22·3
No manure	8·9	18·7

From the above results it would appear that about 1 cwt. per acre is the most profitable quantity of super. to apply under conditions similar to those existing on this farm. Though the yield from the 2 cwt. per acre dressing was greater, the difference was not sufficient to more than compensate for the extra cost involved.

The application of gypsum with the superphosphate has given a further increase of approximately 3 bushels per acre. The gypsum tests were undertaken following on the success achieved with this soil amendment in portions of the Wimmera, where its use was proved to be commercially profitable, and it is now being extensively used. It was desired to ascertain whether similar results could be obtained on the stiff wheat lands of the Goulburn Valley. So far, however, the results have not been so convincing as was the case in the Wimmera, but as the residual effect of the gypsum should be apparent in the yields for some years, it appears that the initial cost of the application will be recouped with at least a margin of profit. Whether the margin is sufficient to warrant growers testing gypsum out on their own land is a matter that must be decided by the growers themselves.

The depth of ploughing test last season indicated that 5-inch ploughing was definitely superior to 3 inch, the yields showing a difference of 3 bushels per acre in favour of the deeper ploughing.

It is considered by the Department that these plots have now served their purpose, and it is proposed to transfer the experiments to another location in the same district, but where different conditions may exist. A new site has been selected on the farm of Mr. J. N. Phillips, at Congupna Road.

NUMURKAH FALLOW COMPETITIONS, 1928.

Report of Judge—A. J. Vasey, B.Agr.Sc., Science Field Officer.

Twenty-seven fallows were inspected in the Numurkah competition this year. Considering the exceptional weather conditions which had prevailed during the time of their preparation, they were generally in good order, and showed evidence of intelligent working.

The dry spell in the spring of last year prevented the usual workings being given, and few of the entries had received more than one cultivation after the initial ploughing and harrowing. This had been done in early October, after opportune rains at the end of September. Though light showers had fallen at various times throughout this period, they did not justify a working. Under such conditions there was a tendency to rather force the position with excessive harrowing. This is a dangerous practice, as apart from making the mulch too fine, it tends to set the seed-bed too quickly and unduly shallows the mulch.

On this class of soil it is desirable that the first cultivation should extend almost to the depth of the ploughing, bringing the clods to the surface and leaving the fine particles beneath. Excessive harrowing before this is done tends to set clods and fine material together in the bed, with the result that satisfactory consolidation can rarely be obtained later on.

The very wet late summer and autumn brought away a phenomenal weed growth. From a general inspection of the whole competition, it was apparent that the best results in the after-harvest workings were

obtained with the Wimmera scarifier. This had dealt with the weeds successfully without working at undue depth, and thus disturbing the seed-bed. Where the lighter implements had been used, depth was necessary to keep them in on fallows which had become set down. Light cultivations of from 1½ to 2 inches are all that are required at this time of the year; heavy mulching now only tends to deep sowing, which is not desirable on soils of the Numurkah district. Quite a satisfactory job was made with disc implements where depth of working was carefully watched.

Details of Award.

Competitor.	Mulch.	Moisture.	Absence of Weeds.	Cultivation.	Total Points.
Possible Points	**25.**	**25.**	**25.**	**25.**	**100.**
Lukies Brothers (1) ..	22	25	25	22	94
H. Formby	22	24	25	22	93
Lukies Brothers (2) ..	21	25	25	21	92
F. Thornton	21	25	24	21	91
W. White (2)	21	25	24	21	91
F. Hodges	21	25	25	20	91
P. Tweddle	21	25	24	20	90
J. Mortimer	21	25	24	20	90
Adams Brothers	21	25	24	19	89
W. White (1)	21	24	24	20	89
W. L. Moss	21	24	24	19	88
J. Fowler	20	25	24	19	88
D. K. Rendell	20	24	24	20	88
A. Young	20	24	25	19	88
Lukies Brothers (3) ..	19	25	25	19	88
R. Adams	20	24	23	20	87
A. V. Scott	20	24	25	18	87
Hay and Christie (1) ..	20	24	24	18	86
E. A. Patrick	19	25	24	18	86
J. Henderson	19	24	25	18	86
E. C. Watters (1) ..	19	24	24	18	85
G. A. Close	18	24	24	19	85
Hay and Christie (2) ..	19	24	24	18	85
J. McArthur	19	23	24	18	84
C. Hodge	18	23	24	18	83
J. O. Hendy	18	23	23	18	82
E. C. Watters (2) ..	18	22	24	18	82
J. Thornton	18	20	23	18	79

April is not the best month of the year in which to judge fallows, as appearances depend so much on the exact day of the judge's arrival.

The points awarded this year varied directly with the efficiency of the after-harvest treatment. Some surprise may be expressed at the variation in the marking for moisture. This feature, of course, varies with subsoil, those of a clayey nature showing better moisture than the loams, and a further variation was noticed with the degree of compactness of the seed-bed in the latter class.

First place was awarded to Messrs. Lukies Bros.' No. 1 entry. This was a very fine fallow indeed. The mulch was in good order and of a nice consistency, and a high percentage of moisture showed in a well-compacted seed-bed. Weeds were entirely absent. The soil in this

paddock was, with the No. 2 entry, possibly the most loamy seen in the competition, and in consequence the methods which have given such success here, cannot be recommended for adoption in every detail throughout the district. It is probable that the same result might have been obtained even in this case without so much harrowing. Workings given were as follows:—Cultivated in March, 1927, disced 4 inches deep in June, smoodged in July, scarified in August and again in October and December, scarified in January, harrowed in February, again scarified with another harrowing in March, scarified in late March and a final harrowing in April.

Mr. H. Formby's entry, which was awarded second place, was on rather different country, and in consequence, differently worked. It was in good order throughout, being second only in the percentage of moisture showing in the seed-bed. It had been worked as follows:—Mouldboard ploughed 4 inches in June, cross-harrowed in August, spring-toothed in September, crossed with the rigid-tined combine in February, scarified in late February, and again in March.

Messrs. Lukies Bros.' No. 2 entry was placed third. Though a very good fallow, and very similar to their No. 1 entry, it was not quite so impressive. The following workings had been given:—Ploughed with the Sundercut disc in March to 4 inches, cultivated in June, smoodged in July, and scarified in October, 1927; in January, 1928, it was cultivated, harrowed in February, scarified and harrowed in March, and cultivated with the rigid-tined combine in April and harrowed.

SYDENHAM FALLOW COMPETITION, 1928.

Report of Judge—P. D. McRae, Field Officer.

As this competition was the first of its kind conducted by the Sydenham Farmers Association there was some uncertainty among local farmers as to the features taken into consideration in the judging of a fallow. For their information it may be pointed out that fallows are judged on the condition of the mulch, the apparent moisture content of the soil, the presence of weeds, the consolidation of seed-bed, and the general efficiency of the cultivation.

The term mulch is the name given to the loose surface soil. The production and maintenance of this mulch is the most important consideration in fallowing, since if this is properly carried out, all the other factors look after themselves. It is the means of preventing the escape of moisture by evaporation, thereby directly influencing the moisture content of the soil, and it is produced by good cultivation, which also has the effect of destroying weeds and of consolidating the seed-bed.

In the Sydenham district the mulch should be at least three inches in depth, and the looser and dryer it is the more effective is its work.

Together with the mulch, the condition of the soil immediately below it is taken into consideration. For wheat-growing this subsurface soil should be firmly and evenly compacted. In the Mallee and

Wimmera, this is a condition sometimes difficult to attain, and for that reason deep working in those districts must be avoided. At Sydenham, on the contrary, the greater rainfall and the heavier nature of the soil unite to produce conditions highly favorable to this consolidating action, and it is a common experience, after even a moderately heavy rain, to find the ground so hard that implements enter it only with difficulty. The inclination of this type of soil to run together during rain is partly due to the extreme fineness of its particles; any treatment, therefore, which would assist this tendency by producing an unduly fine tilth is fatal to good results. Cultivation should be carried out in such a way that the soil will be kept as far as possible, loose, cloddy and rough. No effort should be made until seeding-time to produce a smooth, level surface. On this account disc implements should be used with caution, and the excessive use of the drag harrow is also to be avoided. Probably the spring-tooth, or, taking into consideration the tenacious character of the soil, the rigid-tined cultivator would give the most satisfactory results. These implements should be used after rain sufficiently often to maintain the mulch in good condition.

Comments on Fallows.

The fallows were inspected this year at a time when they were looking their worst. In most cases, the heavy rains of January and February had made the ground so soft that for some weeks it would not carry the teams. Subsequently there had been delay, for various reasons, in getting to work, with the result that the soil had dried and hardened on the surface, weeds had grown, and, on the whole, the fallows were in poor condition. In all cases, however, there was an ample supply of soil moisture, and with further showers to assist in breaking down the surface, it is quite possible that by seeding-time they will be brought into an excellent state of tilth.

Details of Award.

Competitor.	Mulch.	Moisture.	Absence of Weeds.	Cultivation.	Total Points.
Maximum Points	**25.**	**25.**	**25.**	**25.**	**100.**
V. Butler	24	24	24	25	97
W. R. Morton (1) ..	19	25	23	20	87
B. Wright (1)	21	25	20	20	86
C. A. Butler (1)	20	25	22	18	85
C. G. McRae(2)	18	25	21	18	82
J. O'Neill (2)	17	25	22	18	82
W. R. Morton (2) ..	15	25	22	19	81
J. O'Neill (1)	17	25	20	18	80
W. V. Gooch	20	25	18	17	80
C. G. McRae (1)	20	25	15	19	79
B. Wright (2)	12	25	16	18	71
J. Exell	10	25	12	17	64
C. A. Butler (2)	10	23	12	18	63
Peck Brothers	10	22	10	16	58

Mr. V. Butler had a great advantage over the other competitors in that his land, being a sandy loam, did not become water-logged, and he was thus able to work it shortly after heavy rain. At the same time, the work done was very efficient, and he is to be congratulated on showing a fallow in almost perfect condition. The cultivation of the land was as follows:—Ploughed in January, 1927, harrowed and spring-toothed in March, spring-toothed in June, harrowed in July, spring-toothed in August, harrowed and spring-toothed in October, spring-toothed in January, 1928, harrowed once early in February, and again later in the month.

For such land the treatment given was practically ideal, but for heavier soil, as pointed out above, the frequent harrowings would be likely to have the effect of reducing it to such a condition of fineness as would be harmful.

The fallow was very free from weeds, and had a nice mulch firmly compacted below; owing to the nature of the soil, moisture, although plentiful, was not quite so much in evidence here as on the heavier land.

Mr. Morton's No. 1 entry had a somewhat uneven mulch, being very good in parts but shallow elsewhere, and it was rather hard underneath; the moisture content was good, and there were no weeds. The land had been ploughed in August, harrowed twice in September, spring-toothed once in January and twice in February.

Mr. Wright's No. 1 entry had been ploughed early in August, harrowed September-October, spring-toothed in November, and again in February. The mulch was good and moisture plentiful, but there were many weeds.

In Mr. C. A. Butler's No. 1 entry the land had been ploughed in August-October to a depth of 5 inches, harrowed in November and January, and cultivated twice in February-March. In this case there was a good supply of moisture, the mulch was fairly regular, and about 2 inches in depth; many weeds uprooted by recent cultivation were lying on the surface.

Of the remainder of the fallows, after making due allowance for the difficult conditions, it must be said that they were, generally, rather inferior examples. Some of them were extremely hard, and others were very weedy. In the majority of cases the ploughing had not been done early enough, and the subsequent cultivation had been neither sufficiently frequent nor thorough, the harrows having been used instead of the cultivator. There is little doubt that if the land had received several good deep workings prior to the setting in of summer the results would have been much better.

RUPANYUP CROP AND FALLOW COMPETITION, 1927.

Report of Judge—A. B. Hackwell, B.Agr.Sc., Science Field Officer, Department of Agriculture.

During the past season the majority of crops in the Rupanyup district suffered a severe set-back owing to a sparsity of rainfall, particularly over the critical stages from late September to early November, consequently yields in general were below the high level which has been maintained in recent years in the district.

In most cases the germination and early growth had been exceedingly good, and it was considered that if an extra inch or two of rain had fallen over the critical period, excellent results would have been obtained.

Several of the crops, however, were favoured by additional rain, and had responded accordingly.

Official Rainfall for Rupanyup Township.

	1927.	Twenty Years' Average.
January	12	51
February	76	97
March	45	102
April	Nil	70
May	187	188
June	80	214
July	247	174
August	222	183
September	112	242
October	73	135
November	88	103
December	83	105
Total points	1,225	1,664

The above table shows that the total rainfall for the past year was nearly 4½ inches below the average. Also, the rain that fell in the three months—September, October, and November—totalled only 273 points as compared with 480 points over the same period in an average year.

The Competition.

Thirty-two entries were received in all sections—22 for crops and 10 for fallows. Most of the crops finished very unevenly, some patches being better than others, probably due to variation in the soil.

Crop Sections—Comments and Awards.

Brunton Cup.

Half of Competitors' Total Crop—not less than 100 acres.

Great interest is taken in this contest, which extends over a three-year period—1926, 1927, and 1928. The competitor who obtains the highest aggregate in points over that period is awarded the cup. Ten farms

were inspected in this section. Mr. A. R. Dunlop and Mr. M. Miller are awarded equal first with 91 points each, followed by Mr. R. J. Jackson with 86 points. Mr. A. R. Dunlop's entry of 100 acres of Federation was grown on portion of last year's first-prize fallow. The crop had been regularly drilled, was dense, short, undulating, and slightly tipped. It was sown mid-July with 100 lb. of dry pickled seed and 1 cwt. of superphosphate per acre. Mr. Miller's exhibit consisted of 90 acres of Federation and 30 acres of Huf's Imperial. The crop was tall, well headed, and promised the best yield in the section. The presence of barley and strangers, however, detracted from its excellence. From 75 to 80 lb. of dry pickled seed and 100-140 lb. of manure were used per acre. Of Mr. R. J. Jackson's entry of 140 acres of Federation, 80 acres were fairly even, short, not flaggy, and well headed, but contained a little disease. The remainder was not so even, being patchy and uneven on the heavier land. The crop had been sown about mid-July, with 90 lb. of seed pickled with formalin and 112-125 lb. of superphosphate per acre.

Up to date, Mr. A. R. Dunlop has the highest aggregate with 179 points, Mr. R. J. Jackson second with 177 points, and Mr. J. G. Dunlop third with 174 points.

Awards—Brunton Cup.

Competitor.	Apparent Yield.	Purity and Trueness to Type.	Absence of—		Evenness.	Total, 1927.	Points Awarded, 1926.	Progress Total, 1926 + 1927.
			Weeds.	Disease.				
Possible Points	**35**	**20**	**15**	**15**	**15**	**100**	**100**	**200**
A. R. Dunlop ..	33	18	14½	13	12½	91	88	179
M. Miller	35	15	14	14	13	91	80	171
R. J. Jackson ..	31	16	14	13½	11½	86	91	177
Jas. Chapman ..	30	17	13½	14	11	85½	87	172½
H. S. Holloway ..	29½	17	14	13	12	85½	82	167½
J. G. Dunlop	27	18	14	14	12	85	89	174
Alf. Chapman ..	27	17½	14	14	11	83½	89	172½
J. J. Crampton ..	20	18	13	14	9	74	90	164
Fred. Chapman ..	19	17	10	13	9	68	88	156
H. E. Tickner ..	18	18	10	13	9	68	83	151

Best 60 Acres of Wheat.

Some excellent crops were inspected in this section, particularly in the two entries of Messrs. Johnston and Florence, which are awarded first and second, with 94 and 93½ points respectively. The crop was well grown, dense, and even, and should return a handsome yield for the season. The drilling, however, had been at fault, for misses and overlapping alternated throughout. Both entries had been sown late in July with 90 lb. of dry pickled seed and 120 lb. of superphosphate per acre.

Third place goes to Mr. J. T. Sweetman with 89 points for his entry, consisting of Nabawa and Federation. The crop had made splendid growth, and promised a good yield, except at the end of the paddock, where it faded off. Freedom from disease was noticeable, but points

were lost on account of strangers, a little barley, and some mustard. The area had been sown in mid-June with 70 lb. of seed pickled with formalin and with 1 cwt. of superphosphate per acre.

AWARDS.

Competitor.	Apparent Yield.	Purity and Trueness to Type.	Absence of—		Evenness.	Total.
			Weeds.	Disease.		
Possible Points	**35**	**20**	**15**	**15**	**15**	**100**
T. Johnston and J. Florence, No. 1 ..	35	18	14½	14	12½	94
T. Johnston and J. Florence, No. 2 ..	35	18	14½	14	12	93½
J. T. Sweetman	33	16	13	14½	12½	89
M. Miller	32	15	14	14	13	88
A. R. Dunlop	29	17½	14½	13	12½	86½
R. J. Jackson	27	16	14	14	12	83

Best Crop on Competition Fallow.

Six crops were inspected in this section, the winner of which has to obtain the highest aggregate in points for the fallow one year, and the crop grown on that fallow.

Mr. A. R. Dunlop is awarded first place with 93½ points for his crop of Federation. This entry covered 140 acres, of which 100 were entered for the Brunton Cup.

Mr. W. Morgan's entry of Federation and Huf's Imperial received 91 points, and was placed second. Inspection revealed poor patches and an unevenness that was not noticeable from the outside of the paddock. The crop was heady, and promised a satisfactory yield.

Mr. H. S. Holloway obtained third place with 87½ points for his entry of 130 acres of Federation, sown second week of July with 95 lb. of formalin-pickled seed and 124 lb. of superphosphate per acre. In one paddock of 90 acres it was noticed that the crop turned out better on that portion sown on fallow after barley fed-off than on that sown on fallow after oats.

First place for fallow 1926, plus crop 1927, goes to Mr. A. R. Dunlop with 186½ points; second to Mr. H. S. Holloway, 177½ points; and a close third to Mr. W. Morgan, 177 points.

AWARDS.

Crop 1927 *on* 1926 *Competition Fallow*

Competitor.	Apparent Yield.	Purity and Trueness to Type.	Absence of—		Evenness.	Crop Total, 1927.	Fallow Total, 1926.	Grand Total.
			Weeds.	Disease.				
Possible Points	**35**	**20**	**15**	**15**	**15**	**100**	**100**	**200**
A. R. Dunlop	35	18	14½	13	13	93½	93	186½
H. S. Holloway ..	31	17	14	13	12½	87½	90	177½
W. Morgan	34	18	13½	14	11½	91	86	177
R. J. Jackson	31	16	14	13½	11½	86	89	175
M. Miller	24	17	14	14	12	81	90	171
W. Newall	20	17	13	14	11	85	86	171

Fallows—Comments and Awards.

The majority of the fallows were in good order for a season that presented less opportunities than usual for their working down.

A perusal of the awards shows that the contest was exceedingly keen, as only 4½ points separated the first seven competitors.

AWARDS.

Competitor.	Moisture.	Mulch.	Absence of Weeds.	Cultivation.	Total.
Possible Points	**25**	**25**	**25**	**25**	**100**
Half of Competitor's Total Fallow.					
A. R. Dunlop	22	24	24	22	92
T. Johnston and J. Florence	23	23	23	22	91
M. Miller	23	23	23	21	90
T. Johnston	24	22	23	20	89
R. J. Jackson	22	22	24	20	88
J. T. Sweetman	23	23	21	21	88
T. H. Coote	23	23	20	21½	87½
D. F. McIntosh	20	21	24	19	84
Whole of Soldier's Fallow.					
T. H. Coote	23	22	20	22	87
B. W. Bywaters	22	23	20	20	85

The paddock submitted by Mr. A. R. Dunlop was very even, and gained first place with 92 points. It had been summer fallowed with the plough in March to 3½-4 inches, harrowed in May, scarified and harrowed in July, and harrowed in August, September, and October. The mulch was of even depth, overlying a level bed, which, however, lacked that degree of consolidation expected in a normal season.

Second place goes to Messrs. Johnston and Florence with 91 points for their entry of 300 acres. The quality of this fallow varied somewhat, the best being found in the 200 acres that had been summer fallowed with the mouldboard in March-April, then worked down as follows:—Harrowed twice in June; scarified, mid-August; harrowed twice in September; and cultivated in October. The remainder had been winter fallowed and harrowed three times. Wheat stubble had been ploughed in over this portion, and a lack of consolidation was apparent. The moisture-content of this fallow taken right through was splendid, but patches of barley grass were a detractive feature.

Mr. M. Miller's entry comes third with 90 points. It was summer fallowed in March to 3 inches, cultivated and harrowed in July, cultivated and harrowed in October, then cultivated again in November. Inspection revealed a good moisture-content, a slightly uneven mulch, irregular consolidation, and some patches of barley grass.

Mr. T. H. Coote is awarded first place in the Soldiers' Fallow with 87 points. The paddock was summer fallowed in March, then worked down twelve times, using scarifier and harrows. Excellent moisture had been conserved, but the mulch was irregular and the bed slightly rough, and points were also lost on account of the presence of young "paddy melons."

DIMBOOLA CROP AND FALLOW COMPETITION, 1927.

Report of the Judge, E. W. Dahlenburg, Salisbury.

In view of the extremely dry spring experienced, it must be gratifying to the Society to have received 43 entries, which number compares very favorably with previous years.

Although the months of September and October were the driest on record, with severe frosts and hot winds, a number of good crops were inspected which were estimated to yield up to 27 bushels an acre. Free Gallipoli is gradually becoming the favorite wheat, and although subject to "tipping" in that district, it was, in the majority of crops inspected, free from this complaint.

A little more care in the selection of seed may be taken by some of the competitors, a number losing points for the presence of "foreign" heads and barley. Crops were fairly free from disease, but a little flag smut and loose smut were noticed.

Where any noxious weeds were seen points were heavily deducted. Although these would not in any way affect the yield, the grain would certainly not be fit to distribute as seed.

I was pleased to note that the Society has adopted the recommendation in the 1924-25 report, "that the whole of farmer's fallow be shown in addition to specified acreage." Although not a deciding factor this year, as with few exceptions the whole of each competitor's fallow was treated similarly to the area submitted for competition, it may however in future, where conditions in the spring are more favorable for the preparation of perfect fallows, greatly assist the judge to make his decisions.

The fallows on the whole were in good order, but the absence of heavy spring rains made it very difficult to obtain a firm, level seed-bed with the correct depth of mulch.

On some of the fallows quite a number of stiff refractory red patches were seen, but nothing has been done to try and improve them. If gypsum were applied at the rate of 30 cwt. per acre in early spring, not only would the land be easier to cultivate for a number of years, but yields would be much heavier.

Tests with gypsum at Government Experimental plots, Salisbury, on red soil fallow in 1926, gave an increase of 5 bushels of wheat on the plots treated with 30 cwt. gypsum, while the same plots in 1927 (wheat stubble), sown to oats, gave an increase of nearly 10 bushels. In 1927 the same quantity of gypsum, applied during the previous spring, gave an increase of 4 bushels of wheat. These are considered good results for the two dry seasons in which the tests were made.

Owing to the season being favorable for the growth of crops on light land, the maximum number of points allotted as handicap is five.

Crop Awards.

Competitor.	Yield.	Purity and Trueness to Type.	Absence of —		Evenness.	Handicap.	Total.
			Weeds.	Disease.			
Possible points ..	**35**	**20**	**15**	**15**	**15**	**5**	**105**
SECTION 1.—BEST 120 ACRES OF CROP ON MALLEE LAND, BY FARMER WITH MORE THAN 640 ACRES.							
V. J. Avery ..	19	19	13	14	13	5	83
A. O. Mibus ..	20	19	14	14	14	..	81
J. McKenzie ..	18	15	14	14	14	5	80
E. K. Grimes ..	15	15	14	14	13	5	76
SECTION 3.—BEST 80 ACRES OF CROP ON MALLEE LAND, BY FARMER WITH LESS THAN 640 ACRES.							
G. J. Glatz ..	16	18	13	14	14	5	80
A. C. Hayter ..	14	15	14	13	12	5	73
SECTION 5.—BEST 120 ACRES OF CROP ON NON-MALLEE LAND, BY FARMER WITH MORE THAN 640 ACRES.							
P. H. Muller ..	27	16	14	14	15	..	86
H. Fechner ..	23	19	8	14	14	..	78
W. J. Westerndorf	16	19	13	14	14	..	76
SECTION 7.—BEST 80 ACRES OF CROP ON NON-MALLEE LAND BY FARMER WITH LESS THAN 640 ACRES.							
H. Wills ..	17	18	13	13	15	..	76
F. Unger ..	17	16	13	13	13	3	75
N. L. Harders ..	9	18	13	13	11	5	69
SECTION 9.—BEST 80 ACRES CROP ON NON-MALLEE LAND—FALLOW JUDGED 1926.							
P. H. Muller ..	27	16	14	14	15	..	86
T. Ingleton ..	19	18	14	14	14	..	79
Rex Fechner ..	18	18	13	14	14	..	77
W. J. Westerndorf	16	19	13	14	14	..	76
SECTION 10.—BEST 80 ACRES OF CROP ON MALLEE LAND—FALLOW JUDGED 1926.							
A. O. Mibus ..	21	19	14	14	14	..	82
G. J. Glatz ..	16	18	13	14	14	5	80
SECTION 11.—BEST 80 ACRES OF CROP—OPEN—TO BE WON THREE TIMES							
A. O. Mibus ..	21	19	14	14	14	..	82
G. J. Glatz ..	16	18	13	14	14	5	80
H. Fechner ..	23	19 ..	8	14	14	..	78
Rex Fechner ..	18	18	13	14	14	..	77

The acreage rate of seeding on 10 farms in 1926 was—78.5 lb. per acre.

The acreage rate of seeding on 13 farms in 1927 was—80 lb. per acre.

Average quantity of super used on 10 farms in 1926—was 102 lb. per acre.

Average quantity of super used on 13 farms in 1927 was—103 lb. per acre.

Section 1.—Mr. Avery's crop consisted of 80 acres of Free Gallipoli and 40 acres of Federation. It was very well headed, true to type, and should yield fairly well. The fallow on which it was grown was worked as follows:—Scarified July; scarified August; harrowed August; scari-

fied October. Cultivated with harrows behind at end of October. Sown with combine in June with 65 lb. seed and 90 lb. super.

Section 3.—Mr. Glatz's crop was grown on stiff red Mallee fringe land, on which gypsum may be applied with good results. The fallow was worked as follows:—Scarified April; scarified and harrowed June; scarified July; scarified and harrowed August; harrowed September; cultivated twice in October; harrowed November; harrowed May; scarified early June; sown with combine in June with 90 lb. seed and 130 lb. super.

Section 5.—Mr. Muller's crop of Free Gallipoli was considered the best in the competition. It was splendidly headed, very even, with few weeds and little disease, but lost four points for the presence of barley. The fallow on which this crop was grown was awarded second prize in last year's competition with 94 points—particulars of working not to hand. Sown with combine drill second week in June with 75 lb. seed and 90 lb. super.

Section 7.—Mr. Wills' crop of Huf's Imperial was grown on very rich Wimmera black land, which was worked as follows, after usual working last year:—Harrowed in January; scarified and harrowed end of May; sown with combined drill in June with 75 lb. seed and 93 lb. super. It was then harrowed.

Section 9.—Mr. Muller's crop described in Section 5.

Sections 10 *and* 11.—Mr. A. O. Mibus wins both these sections with a nice crop of Wannon, which was very true to type. Particulars of winter and spring workings of fallow not to hand. Just prior to seeding it was harrowed in March; cultivated in May; and sown with combined drill at latter end of June with 75 lb. seed and 100 lb. super per acre, and harrowed.

Fallow Awards.

Competitor.	Moisture.	Mulch.	Weeds.	Cultivation.	Total.
Possible Points	25	25	25	25	100
Section 2.—Best 120 Acres of Fallow on Mallee Land by Farmer working over 640 Acres.					
A. O. Mibus (No. 1) ..	21	22	24	21	88
A. O. Mibus (No. 2) ..	20	22	24	21	87
E. K. Grimes (No. 2) ..	20	21	23	20	84
E. K. Grimes (No. 1) ..	20	21	22	20	83
Section 4.—Best 80 Acres of Fallow on Mallee Land by Farmer working under 640 Acres.					
V. H. Harders (No. 2) ..	21	22	25	22	90
V. H. Harders (No. 1) ..	21	22	25	20	88
G. J. Glatz	20	20	25	22	87
Section 6.—Best 120 Acres of Fallow Land other than Mallee by Farmer working over 640 Acres.					
W. J. Westendorf ..	21	23	25	24	93
Rex Fechner	21	22	25	24	92
F. W. Stephan (No.) ..	20	21	25	24	90
F. W. Stephan (No. 1) ..	20	21	24	24	89
Flack Bros.	20	20	25	22	87
A. J. W. Lehman ..	20	20	25	22	87
P. H. Muller	20	20	24	21	85
A. C. Jorgenson	20	20	24	21	85

Fallow Awards—*continued.*

Competitor.	Moisture.	Mulch.	Weeds.	Cultivation.	Total.
Possible Points ..	**25**	**25**	**25**	**25**	**100**

Section 8.—Best 80 Acres of Fallow Land other than Mallee by Farmer working less than 640 Acres.

Peter Rogers (No. 1) ...	22	24	25	24	95
Peter Rogers (No. 2) ..	21	24	25	23	93
H. Wills	20	21	25	23	89
T. Ingleton	20	21	25	23	89
N. L. Harders (No. 2) ..	20	21	25	20	86
N. L. Harders (No. 1) ..	20	21	23	21	85

Section 2.—Mr. Mibus's fallow was spring-toothed in autumn (stubble land); skim-ploughed shallowly in July; spring-toothed in October, and harrowed; and harrowed again in November after rain.

Section 4.—Mr. V. H. Harder's fallow was ploughed in April (oat stubble land); scarified in June; harrowed August; scarified in September; and harrowed in November after rain.

Section 6.—The winner in this section, Mr. Westendorf, exhibited a well-prepared fallow—a firm, level seed-bed covered by a good depth of mulch. It was worked up as follows:—Scarified in March; scarified and harrowed in July; scarified and harrowed in September; blade and harrowed in October.

Section 8.—Mr. Peter Rogers is credited with having the best prepared fallow in the whole competition, care and judgment being taken with every working. The seed-bed was perfectly level and moist, covered by a good mulch of 2½ inches deep. It was worked as follows:—Scarified in March; scarified and harrowed in July; scarified and harrowed in August; harrowed again in August; scarified and harrowed early in October; and harrowed in November after rain.

CHARLTON CROP AND FALLOW COMPETITION.

Judged by G. C. Coutts, Warracknabeal.

Despite the unfavorable season, the satisfactory total of 49 entries was received for the crop and fallow competitions conducted by the Charlton Agricultural and Pastoral Society. Of these entries, 17 consisted of crops and 32 of fallows.

In the section for the best crop on black land, the winner was Mr. A. R. Blackwood, who showed a splendid crop of Federation. Portion of the land on which this crop was grown had been summer-fallowed to 4 inches deep in March, 1926, then scarified and harrowed in June. The balance of the land was winter-fallowed, 4 inches deep, in July, harrowed twice then, and again in the middle of August. This portion was scarified, with the harrows attached, in September; and the whole area was scarified in October, harrowed in January after rain, and worked up with the combine at the middle of June. At the end of June and early July, dry-pickled seed was sown, with the combine, at the rate of 80 lb with 125 lb. of 22 per cent. super. per acre.

The section for the best crop on red land was won by Mr. A. J. White, who showed a very creditable crop which scored 91 points. In the "mixed land" section, Mr. Blackwood was again to the fore, securing first place with a fine crop of Free Gallipoli. The working of the fallow in this case was similar to that given above up to the harrowing after rain in January. Portion of this paddock was then sown early in June with the combine, the balance being worked up again with the combine and sown at the end of the same month. The rate of seeding was the same as with the crop of Federation, but the dressing of super. was reduced to 114 lb. per acre.

On the whole, the fallows presented were good, considering that from 1st January to 22nd November only 8.22 inches of rain had been recorded. The section for black land was won by Mr. A. J. White, while Mr. Donald Gillies showed the best red land fallow. In the section for the whole of competitor's fallow and for "mixed land", Mr. Blackwood was again successful. His "mixed" fallow was ploughed 4 inches deep with a set plough in May, harrowed twice in August, scarified in September, and harrowed early in October and again in November. The red land fallow shown by Mr. Blackwood was ploughed to 4 inches with a skeleton and mouldboard plough in August. Harrows were attached to the ploughs. The fallow was then harrowed at the end of August, scarified in September, and again harrowed in October.

Awards.

CROP SECTION.

Competitor.	Yield.	Trueness to Type.	Absence of—		Cultivation.	Total.
			Weeds.	Disease.		
Possible Points	35	20	15	15	15	100
Section 1.—Black Land, not less than 75 acres.						
A. R. Blackwood	30	20	15	15	12	92
A. J. White	30	20	14	14½	12½	91
P. Carmody	27	19	14	14	13	87
T. N. Judd	25	20	14	14	13	86
W. O'Connor	25	18	15	14	13	85
F. J. Edwards	25	19	13	14	12	83
Section 2.—Red Land, not less than 75 acres.						
A. J. White	32	18	14	13	14	91
J. McDonald and Sons ..	31	18	14	14	12	89
S. J. Adams	30	18	13	12	12	85
Section 3.—Mixed Land, not less than 75 acres.						
A. R. Blackwood	30	20	15	15	12	92
Geo. Cox	28	19	14	13	12	86
F. W. Judd	25	19	14	14	12	84
T. N. Judd	26	19	12	12	12	81
Section 4.—Competitor's whole area, not less than 150 acres.						
A. R. Blackwood	30	20	15	15	12	92
A. J. White	30	19	15	15	12	91
Geo. Cox	28	19	14	13	12	86
T. N. Judd	26	19	12	12	12	81

FALLOW SECTION.

Competitor.	Moisture.	Mulch.	Absence of Weeds.	Cultivation.	Total.
Possible Points	**25**	**25**	**25**	**25**	**100**
75 Acres Black Land.					
A. J. White	24	23	23	22	92
Geo. Cox	22½	22	24	23	91½
F. J. Edwards	23	23	23½	21½	91
T. N. Judd	23½	21	24	22	90½
J. W. O'Connor	23	21	24	22	90
W. O'Connor (No. 1) ..	22	22	23	22	89
W. O'Connor (No. 2) ..	22	22	23	22	89
E. McGurth	22	20	21	21	84
J. Bartlett	20	20	20	20	80
75 Acres Red Land.					
Donald Gillies	24	24	23	23	94
A. R. Blackwood ..	23	23	24	23½	93½
S. J. Adams	23½	24	22	23	92½
A. J. White	22½	22½	23	23	91
H. Gamble	22½	22½	23	22	90
J. McDonald and Sons ..	21	22	24	23	90
The Whole of Competitor's Fallow, not less than 150 acres.					
A. R. Blackwood.. ..	23½	23½	24	23	94
Geo. Cox	23	23	24	23	93
T. N. Judd	24	22	23	23	92
A. J. White	23	23	23	22	91
Best Fallowed Mixed Land, not less than 75 acres.					
A. R. Blackwood.. ..	24	24	24	24	96
Geo. Cox	24	23	24	24	95
A. Judd	24	24	23	23	94
T. N. Judd	24	23	23	23	93
H. Gamble	23	23	23	23	92
W. O'Connor	23	23	22	23	91
J. W. O'Connor	23	22	22	23	90
Duncan Gillies	22	21	21	21	85
J. Bartlett	20	20	20	20	80
Best Fallowed Land, not less than 50 acres. Returned Soldiers.					
J. Fitzsimmons	23	23	24	24	94
Donald Gillies (No. 2) ..	23	22	24	24	93
Duncan Gillies	23	22	23	24	92
Donald Gillies (No. 1) ..	22	22	23	24	91

REGISTRATION OF STALLIONS.

Eighth Annual Report under the Horse Breeding Acts 1919-1925.

By E. A. Kendall, B.V.Sc., Chief Veterinary Officer.

The total number of stallions registered under the Horse Breeding Acts for the year 1927-28 was 864. Of these 646, having complied with the provisions of the Acts with regard to being inspected and registered previously at 3, 4, and 5 years of age, were automatically registered without further veterinary inspection, on application and payment of the prescribed fees.

The number of Inspection Parades held at appointed centres for the year was 142, at which 274 stallions were submitted to the Examining Veterinary Officers, comprising 219 of the Draught, 31 of the Light, and 24 of the Pony classes. Of the 274 inspected, 218 were approved, and 56, or 20.43 per cent., were refused registration. The percentage of refusals of registration is thus appreciably higher than that of the previous year, which was 16.16.

Dealing with the several classes of stallions it will be noted that of the 219 draughts inspected, 45, or 20.54 per cent., were refused registration, 20, or 9.13 per cent., being rejected for unsoundness, while the other 25, or 11.41 per cent., were disapproved as below a reasonable standard for stud purposes.

Compared with last year's inspections the percentage of rejections, both on the grounds of unsoundness and disapproval, is higher, more especially in the case of disapproved stallions.

Of the 31 Light stallions inspected, 6, or 19.34 per cent., were refused registration: 3 for unsoundness, and 3 as being below standard. Here, again, there is a higher percentage of rejections than obtained last year.

Five of the Pony stallions presented for inspection, or 20.83 per cent., were refused registration, which is practically the same as for the previous year.

It is disquieting to find such an increase in the percentage of stallions rejected, particularly in the case of the draught class. There has been no alteration in the standard of examination since the inception of the Horse Breeding Acts. It must be assumed, therefore, that, along with the falling-off in the number of stallions now maintained in the State, there is a tendency towards a decline in soundness and standard compared with previous years.

When commenting, in last year's report, on the reduced number of stallions registered for that period, the opinion was expressed that, apart from the development of motor traction, this was in some measure due to the fact that not many of the sons of those prominent horse-breeders, who have retired or passed away in recent years, were carrying on the industry. It is not improbable that this factor has also had an adverse influence on the standard of some of the stallions now being bred.

Probably the shortage of weighty draught horses, which has existed for some years past, is also responsible, to some extent, for the higher percentage of low-grade stallions being bred. Good sound draught mares are scarce, consequently those who are endeavouring to meet the demand for heavy utility horses have, in many cases, mated

their stallions with unsound and inferior mares, thus transmitting the defects the Horse Breeding Act was designed to eliminate. The effect of this would not be so serious were the male progeny of such mating gelded, but when a number are retained as stallions, it is not difficult to understand why the percentage of cases of unsoundness, and disapprovals as regards standard, show such a tendency to increase.

It is quite true that such stallions can be refused registration under the Horse Breeding Acts, but they can still be used to perpetuate their kind because of a provision of the *Horse Breeding Act* 1925, which allows the owner of a rejected stallion to retain him for use with his own mares.

SUMMARY OF EXAMINATIONS.

1927-28.

	Draught.		Light.		Pony.		Total.	
	Examined. 219	Certificated. 174	Examined. 31	Certificated. 25	Examined. 24	Certificated. 19	Examined. 274	Certificated. 218
	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.
Bog Spavin ..	..	..	..	..	..	..	..	..
Bone Spavin ..	..	..	2	6·45	2	8·33	4	1·46
Cataract ..	..	..	..	..	..	..	..	..
Curb	..	..	..	..	..	..	..	..
Osteo Porosis ..	..	..	..	..	..	..	..	..
Ringbone ..	2	·91	1	3·22	..	..	3	1·09
Roaring ..	..	..	..	..	..	..	..	..
Shivering ..	..	..	..	..	..	..	..	..
Sidebone ..	16	7·31	..	..	..	..	16	5·84
Stringhalt ..	2	·91	..	..	..	..	2	·73
Through unsoundness ..	20	9·13	3	9 67	2	8·33	25	9·12
Through disapproval ..	25	11·41	3	9·67	3	12·50	31	11·31
Total ..	45	20·54	6	19·34	5	20·83	56	20·43

1926-27.

	Draught.		Light.		Pony.		Total.	
	Examined. 292	Certificated. 246	Examined. 64	Certificated. 54	Examined. 40	Certificated. 32	Examined. 396	Certificated. 332
	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.	Rejected.	Per cent. Rejected.
Bog Spavin ..	..	..	..	..	..	..	..	..
Bone Spavin ..	1	·34	2	3·13	1	2·50	4	1·01
Cataract ..	..	..	..	..	..	..	..	..
Curb	..	..	..	..	..	..	..	..
Osteo Porosis ..	..	..	..	..	1	2·50	1	·25
Ringbone ..	4	1·37	1	1·56	..	..	5	1·27
Roaring ..	..	..	1	1·56	..	..	1	·25
Shivering ..	..	..	1	1·56	..	..	1	·25
Sidebone ..	20	6·85	..	..	..	..	20	5·05
Stringhalt ..	..	..	..	..	..	..	..	..
Through unsoundness ..	25	8·56	5	7·81	2	5·00	32	8·08
Through disapproval ..	21	7·19	5	7·81	6	15·00	32	8·08
Total ..	46	15·75	10	15·62	8	20·00	64	16·16

Appeals.

During the year under review four appeals were lodged against the decision of the Veterinary Officers. In two cases—one for disapproval and another for sidebone—the appeals were upheld. The other two, also cases of sidebone and disapproval, were dismissed.

The "Horse Breeding Act 1925."

As indicated in last year's report, an important provision of the *Horse Breeding Act* 1925, which amends the Principal Act of 1919, is that whereby an owner of a stallion which, having been registered, is refused registration on the grounds of unsoundness at the next succeeding Inspection Parade, may be paid compensation on castration of such stallion. During the year 1927-28, ten compensation claims were paid in accordance with the provisions of this Act.

Parades for the Coming Season.

As the alterations to be made in the Railway time-table for the winter months have not yet (6th May, 1928) been finally determined, it is not possible to complete the list of parades for the coming season, but a list of the centres at which such parades will be held up to the week ending the 6th August next, is printed on pages . Notification of parades to be held subsequent to this date will be given in this *Journal* and also in the weekly and daily press. Owners in districts where these later parades will be held, who apply for registration of their stallions, will be notified direct by the Chief Veterinary Inspector of the date of the proposed parades in their respective districts.

Owners of stallions are advised to study the schedule of parades for choice of centre to meet their convenience. Application should then be made on or before the first July, 1928, on the prescribed form for registration. Owners are reminded that under the *Horse Breeding Act* 1925 it is now compulsory to forward with each application the sum of £3, being £1 registration fee and £2 compensation fee.

Veterinary officers will not necessarily attend any place specified in the schedule unless a notification is received that a stallion will be presented there for examination on the date and hour fixed in the schedule.

Forms of application may be obtained from secretaries of agricultural societies and from officers in charge of police stations, for whose assistance in this connexion the thanks of this Department are due.

Owners of stallions must bear in mind that change of ownership should be notified without delay in order that the certificate of registration can be suitably endorsed. A registration expires within 30 days unless the required notice is given.

The regulations under the amending Act are printed hereunder, and owners of stallions should make themselves acquainted with them.

STALLION PARADES.

TIME TABLE, 1923.

Provided that the applications for registration received indicate that a horse will be in attendance there for examination, a parade will be held at each of the following places :—

No. and Date.	Parade.	Time.	Officer Arrives.	Officer Departs.
Every Saturday from June 30 to December 15	Agricultural Offices	10 a.m.		
No. 1.				
Monday, June 18 ..	Maryborough	2 p.m. ..	12.30 p.m. ..	10.20 p.m.
Tuesday, June 19 ..	Mildura ..	11 a.m. ..	7.25 a.m. ..	8 a.m. (20th)
Tuesday, June 19 ..	Carwarp ..	3 p.m. ..	Driving ..	Driving
Wednesday, June 20..	Ouyen ..	10.30 a.m.	10.12 a.m. ..	Driving
Wednesday, June 20..	Galah ..	11.30 a.m.	Driving ..	Driving
Wednesday, June 20..	Walpeup ..	12.15 p.m.	Driving ..	Driving
Wednesday, June 20..	Underbool ..	1.30 p.m.	Driving ..	Driving
Wednesday, June 20..	Boinka ..	2.15 p.m.	Driving ..	Driving
Wednesday, June 20..	Tutye ..	2.45 p.m.	Driving ..	Driving
Wednesday, June 20..	Cowangie ..	3.30 p.m.	Driving ..	Driving
Wednesday, June 20..	Murrayville..	4.30 p.m.	Driving ..	Driving
Wednesday, June 20..	Panitya ..	5 p.m. ..	Driving ..	Driving
No. 2.				
Tuesday, June 19 ..	Woomelang	10 a.m. ..	9.15 p.m. (18th)	12.15 p.m.
Tuesday, June 19 ..	Watchem ..	2 p.m. ..	1.48 p.m. ..	6.43 p.m.
Wednesday, June 20..	Birchip ..	10 a.m. ..	7.14 p.m. (19th)	1.23 p.m.
Wednesday, June 20..	St. Arnaud	3.30 p.m.	3.20 p.m. ..	12.4 a.m. (21st)
Thursday, June 21 ..	Donald ..	11 a.m. ..	12.56 a.m. ..	2.30 p.m.
No. 3.				
Tuesday, June 26 ..	Sea Lake ..	10 a.m. ..	7.40 p.m. (25th)	9.50 a.m. (27th)
Tuesday, June 26 ..	Nandaly ..	12 noon ..	Driving ..	Driving
Tuesday, June 26 ..	Culgoa (Railway Station)	3.30 p.m.	Driving ..	Driving
Wednesday, June 27..	Wycheproof (Railway Station)	12 noon ..	12 noon ..	12.25 p.m.
No. 4.				
Tuesday, June 26 ..	Charlton ..	11 a.m. ..	3.51 p.m. (25th)	1.43 p.m.
Tuesday, June 26 ..	Korong Vale	2.45 p.m...	2.45 p.m. ..	3.20 p.m.
Tuesday, June 26 ..	Boort (Railway Station)	4 p.m. ..	4 p.m. ..	4.50 p.m.
Wednesday, June 27..	Quambatook	10 a.m. ..	5.30 p.m. (26th)	11.5 a.m.
Wednesday, June 27..	Inglewood ..	4.15 p.m.	4.15 p.m. ..	1.29 p.m. (28th)
Thursday, June 28 ..	Wedderburn (Railway Station)	2.25 p.m...	Driving ..	Driving
No. 5.				
Monday, June 25 ..	Mitiamo (Railway Station)	1.25 p.m.	1.25 p.m. ..	1.43 p.m.
Monday, June 25 ..	Pyramid	2.6 p.m. ..	2.6 p.m. ..	7.10 a.m. (26th)
Tuesday, June 26 ..	Raywood ..	11 a.m. ..	9.18 a.m. ..	12.50 p.m.
Tuesday, June 26 ..	Tandarra ..	1.5 p.m. ..	1.4 p.m. ..	4.43 p.m.
Wednesday, June 27	Bendigo ..	11 a.m. ..	6.10 p.m. (26th)	3.15 p.m.

STALLION PARADES, TIME TABLE—*continued.*

No. and Date.	Parade.	Time.	Officer Arrives.	Officer Departs.
No. 5—*continued.*				
Wednesday, June 27	Castlemaine	4.30 p.m.	4.5 p.m.	Driving
Thursday, June 28	Shelbourne	10 a.m.	Driving	Driving
Thursday, June 28	Maldon	12 noon	Driving	Driving
Thursday, June 28	Newstead	3 p.m.	Driving	Driving
No. 6.				
Monday, June 25	Koondrook	4.45 p.m.	4.45 p.m.	11.30¾ a.m. (26th)
Tuesday, June 26	Kerang	12.45 p.m.	12.45 p.m.	3.55 p.m.
Wednesday, June 27	Piangil	9.30 a.m.	Driving	Driving
Wednesday, June 27	Bannerton	1.30 p.m.	Driving	Driving
Wednesday, June 27	Manangatang	4 p.m.	Driving	Driving
Thursday, June 28	Chillingollah	10 a.m.	Driving	Driving
Thursday, June 28	Ultima	1 p.m.	Driving	Driving
Thursday, June 28	Swan Hill	4 p.m.	Driving	9.30 a.m. (29th)
No. 7.				
Tuesday, July 3	Dimboola	10 a.m.	6.10 p.m. (2nd)	11.30 a.m.
Tuesday, July 3	Jeparit	1.20 p.m.	1.20 p.m.	2.10 p.m.
Tuesday, July 3	Lorquon	3.5 p.m.	3.5 p.m.	6.35 p.m.
Wednesday, July 4	Kaniva	10 a.m.	1.52 a.m.	12 noon
Thursday, July 5	Rainbow	1.30 p.m.	12 noon	2.30 p.m.
Thursday, July 5	Yaapeet	12.30 p.m.	Driving	Driving
No. 8.				
Monday, July 2	Rupanyup	4.40 p.m.	4.40 p.m.	5.5 p.m.
Tuesday, July 3	Marnoo	9.30 a.m.	6.25 p.m. (2nd)	10.50 a.m.
Tuesday, July 3	Stawell	2.25 p.m.	2.25 p.m.	7.35 p.m.
Wednesday, July 4	Navarre	11 a.m.	Driving	Driving
Wednesday, July 4	Ararat	2 p.m.	8.35 p.m. (3rd)	Driving
Thursday, July 5	Avoca	10 a.m.	Driving	3.40 p.m.
No. 9.				
Tuesday, July 3	Alexandra	2 p.m.	12.33 p.m.	3.50 p.m.
Wednesday, July 4	Yea	9 a.m.	5.28 p.m. (3rd)	10.30 a.m.
Wednesday, July 4	Mansfield	2 p.m.	1.40 p.m.	3.30 p.m.
Thursday, July 5	Kilmore	9 a.m.	9.30 p.m. (4th)	9.40 a.m.
No. 10.				
Tuesday, July 3	Hopetoun	10 a.m.	8.50 p.m. (2nd)	7.20 a.m. (4th)
Tuesday, July 3	Patchewollock	12 noon	Driving	Driving
Tuesday, July 3	Speed	3 p.m.	Driving	Driving
Wednesday, July 4	Warracknabeal	10 a.m.	10 a.m.	6.5 p.m.
Thursday, July 5	Beulah	9.30 a.m.	7.40 p.m. (4th)	12.5 p.m.
Thursday, July 5	Minyip	3.15 p.m.	3.10 p.m.	11.45 a.m. (6th)
Friday, July 6	Murtoa (Railway Station)	12.35 p.m.	12.35 p.m.	1.10 p.m.

STALLION PARADES, TIME TABLE—*continued.*

No. and Date.	Parade.	Time.	Officer Arrives.	Officer Departs.
No. 11.				
Monday, July 9 ..	Tungamah ..	1.30 p.m...	1.10 p.m. ..	9.15 p.m.
Tuesday, July 10 ..	Yarrawonga	11 a.m. ..	9.52 p.m. (9th)	2.45 p.m.
Wednesday, July 11..	Benalla ..	9.30 a.m.	5.20 p.m. (10th)	11.25 a.m.
Wednesday, July 11..	Rutherglen	2 p.m. ..	1.53 p.m. ..	7.40 a.m. (12th)
Thursday, July 12 ..	Barnawartha	2 p.m. ..	1.25 p.m. ..	3.28 p.m.
No. 12.				
Monday, July 9 ..	Tallangatta..	4 p.m. ..	3.53 p.m. ..	11.10 a.m. (11th)
Tuesday, July 10 ..	Corryong ..	12.30 p.m.	Driving ..	Driving
Wednesday, July 11..	Wodonga (Railway Station)	12.50 p.m.	12.50 p.m. ..	3.5 p.m.
No. 13.				
Monday, July 9 ..	Euroa ..	10.24 a.m.	10.24 a.m. ..	11.7 a.m.
Monday, July 9 ..	Seymour ..	1 p.m. ..	12.5 p.m. ..	6.1 p.m.
Tuesday, July 10 ..	Moyhu ..	2 p.m. ..	Driving ..	Driving
Tuesday, July 10 ..	Wangaratta	9 a.m. ..	8.24 p.m. (9th)	12.39 p.m.
Wednesday, July 11	Myrtleford ..	3 p.m. ..	3 p.m ..	7.12 a.m. (12th)
Thursday, July 12 ..	Beechworth	2 30 p.m.	2.30 p.m. ..	3.3 p.m.
No. 14.				
Monday, July 9 ..	Wallace .. (Railway Station)	10.35 a.m.	10.30 a.m. ..	11.34 a.m.
Monday, July 9 ..	Ballan ..	12.2 p.m.	12.2 p.m. ..	Driving
Monday, July 9 ..	Bacchus Marsh	2 p.m. ..	Driving ..	Driving
Monday, July 9 ..	Melton ..	4 p.m. ..	Driving ..	8.45 p.m.
No. 15.				
Monday, July 16 ..	Kyabram ..	12.15 p.m.	12.11 p.m. ..	Driving
Monday, July 16 ..	Tongala ..	3 p.m. ..	Driving ..	4.26 p.m.
Tuesday, July 17 ..	Tatura ..	9.30 a.m.	5.27 p.m. (16th)	11.30 a.m.
Tuesday, July 17 ..	Echuca ..	2 p.m. ..	1.15 p.m. ..	3.45 p.m.
Tuesday, July 17 ..	Rochester ..	4.30 p.m...	4.25 p.m. ..	9.15 a.m. (18th)
Wednesday, July 18..	Elmore ..	10 a.m. ..	9.35 a.m. ..	1.15 p.m.
Wednesday, July 18..	Cohuna ..	4 p.m. ..	3.50 p.m. ..	6.45 a.m. (19th)
No. 16.				
Monday, July 16 ..	Dookie (Railway Station)	12.45 p.m.	12.45 p.m. ..	1 p.m.
Monday, July 16 ..	Katamatite (Railway Station)	2.10 p.m.	2.10 p.m. ..	2.50 p.m.
Tuesday, July 17 ..	Nagambie (Railway Station)	9 a.m. ..	7.7 p.m. (16th)	10.5 a.m.
Tuesday, July 17 ..	Shepparton..	Noon ..	11.20 a.m. ..	6 p.m.
Wednesday, July 18	Numurkah ..	10 a.m. ..	6.55 p.m. (17th)	12.24 p.m.
Wednesday, July 18	Strathmerton	12.47 p.m.	12.47 p.m. ..	1 p.m.
Wednesday, July 18	Cobram ..	2 p.m. ..	1.40 p.m. ..	3.30 p.m.
Thursday, July 19 ..	Nathalia ..	2 p.m. ..	1.32 p.m. ..	3.20 p.m.
Friday, July 20 ..	Murchison ..	9.30 a.m...	6.42 p.m. (19th)	10.58 a.m.
Friday, July 20 ..	Rushworth..	11.48 a.m.	11.48 a.m. ..	5.20 p.m.
Friday, July 20 ..	Colbinabbin	1.20 p.m...	Driving ..	Driving

STALLION PARADES, TIME TABLE—*continued.*

No. and Date.	Parade.	Time.	Officer Arrives.	Officer Departs.
No. 17.				
Tuesday, July 17 ..	Natimuk ..	10 a.m. ..	7 p.m. (16th) ..	11.30 a.m.
Tuesday, July 17 ..	Goroke ..	1.15 p.m.	1.15 p.m. ..	6 p.m.
Tuesday, July 17 ..	Edenhope ..	3.30 p.m.	Driving ..	Driving
Wednesday, July 18..	Horsham ..	9 a.m. ..	9.5 p.m. (17th)..	12.10 p.m.
No. 18.				
Tuesday, July 24 ..	Casterton ..	10 a.m. ..	7.40 p.m. (23rd)	Driving
Tuesday, July 24 ..	Coleraine ..	3 p.m. ..	Driving ..	Driving
Wednesday, July 25	Branxholme	10.47 a.m.	10.47 a.m. ..	11.55 a.m.
Wednesday, July 25	Hamilton ..	2 p.m. ..	12.30 p.m. ..	6.22 p.m.
No. 19.				
Tuesday, July 24 ..	Portland ..	10 a.m. ..	7.50 p.m. (23rd)	9 a.m. (25th)
Wednesday, July 25	Heywood ..	10.30 a.m.	10.5 a.m. ..	3.46 p.m.
No. 20.				
Tuesday, July 31 ..	Colac ..	10 a.m. ..	8.21 p.m. (30th)	11.5 a.m.
Tuesday, July 31 ..	Beech Forest	2.20 p.m...	2.20 p.m. ..	2.50 p.m.
Wednesday, August 1	Winchelsea..	10 a.m. ..	7.50 p.m. (31st)	11.22 a.m.
Thursday, August 2 ..	Lara ..	12.20 p.m.	12.16 p.m. ..	12.54 p.m.
No. 21.				
Monday, July 30 ..	Port Fairy ..	4 p.m. ..	2.54 p.m. ..	6.10 a.m. (31st)
Tuesday, July 31 ..	Koroit ..	11 a.m. ..	6.46 a.m. ..	Driving
Tuesday, July 31 ..	Hawkesdale	1.30 p.m.	Driving ..	2.45 p.m.
Tuesday, July 31 ..	Penshurst ..	3 p.m. ..	Driving ..	Driving
Wednesday, August 1	Warrnambool (Railway Station)	10 a.m. ..	Driving ..	Driving
Wednesday, August 1	Terang ..	2.30 p.m.	Driving ..	Driving
Wednesday, August 1	Mortlake ..	3.30 p.m...	Driving ..	Driving
Thursday, August 2	Camperdown	11 a.m. ..	5.40 p.m. (1st)	Driving
Thursday, August 2	Timboon ..	1.45 p.m...	Driving ..	Driving
Thursday, August 2	Cobden ..	4.5 p.m. ..	Driving ..	Driving
Friday, August 3 ..	Werribee ..	11.45 a.m.	11.45 a.m. ..	1.22 p.m.
No. 22.				
Tuesday, July 31 ..	Bannockburn	2 p.m. ..	1.34 p.m. ..	4.12 p.m.
Wednesday, August 1	Vite Vite ..	2 p.m. ..	12.22 p.m. ..	4.37 p.m.
Thursday, August 2	Lismore ..	10 a.m. ..	5.14 p.m. (1st)	11.45 a.m.
Thursday, August 2	Westmere ..	2 p.m. ..	1.13 p.m. ..	3.52 p.m.
Friday, August 3 ..	Inverleigh ..	10 a.m. ..	Driving ..	Driving
Friday, August 3 ..	Geelong ..	2 p.m. ..	12.10 p.m. ..	5 p.m.
No. 23.				
Monday, August 6 ..	Royal Show Grounds	2 p.m.		

REGULATIONS UNDER THE HORSE BREEDING ACTS.

1. *Interpretation.*—In the interpretation of these Regulations, unless inconsistent with the context or subject-matter—

"Act" means *Horse Breeding Act* 1919 (No. 3040), and *Horse Breeding Act* 1925 (No. 3406).

"Approved standard" means a standard which conforms to a reasonable standard in respect of type, conformation, and breeding.

"Certificate" means a certificate for the time being in force of registration under this Act.

"Chief Veterinary Inspector" means the Chief Veterinary Inspector of the Department of Agriculture.

"Inspection parade" means a parade of a stallion or stallions for the purpose of examination under this Act with a view to determining whether or not it or they is or are sound and of approved standard.

"Owner" means any owner (whether jointly or in severalty and whether absolutely or as lessee) or person in possession or charge of a stallion excepting for the purposes of the provisions of the Act with respect to compensation when "owner" means the owner of the stallion but does not include a lessee or person in possession or charge of any stallion.

"Prescribed" means prescribed by this Act or the regulations.

"Register" means the register of stallions kept in pursuance of this Act.

"Registered" means entered pursuant to this Act in the register.

"Registration" means registration for the time being in force under this Act.

"Regulations" means regulations made under this Act.

"Sound" means free from such diseases or defects as are deemed by the regulations to constitute hereditary unsoundness, and "soundness" has a corresponding meaning.

"Special inspection parade" means an inspection parade held at the request of the owner of the stallion.

"Stallion" means any male horse or donkey not wholly castrated and over the age of two years.

"Stud purposes" means mating with females for the purpose of procreation.

"Thoroughbred mare" and "thoroughbred stallion" means respectively a mare or a stallion entered in any prescribed stud-book or in the register kept by the association known as the Victorian Trotting and Racing Association.

"Veterinary Officer" means a veterinary surgeon in the employment of the Department of Agriculture.

2. Every owner of other than a registered thoroughbred stallion which is used for stud purposes with registered thoroughbred mares only shall on or before the first day of July in each year apply in writing to the Chief Veterinary Inspector to have such stallion registered, and with each such application shall forward a registration fee of Twenty shillings and a compensation fee of Forty shillings. The application shall be in the following form:—

APPLICATION FOR REGISTRATION OF A STALLION.

(*Horse Breeding Act* 1919.)
(*Horse Breeding Act* 1925.)

The Chief Veterinary Inspector,
Department of Agriculture,
Melbourne.

I(1).....hereby apply for registration of.....

my(2).....stallion(3)..... for the period ending 30th June,(4).....19 , and I enclose herewith the sum of Three pounds (£3), being the amount of the Registration fee One pound (£1) and Compensation fee Two pounds (£2). I submit the following true particulars of the above-named stallion.

The stallion was bred by.....of.....and/or purchased by me from.....of.....

Date foaled.....

Sire..... { Sire's sire..... / Sire's dam.....

Dam..... { Dam's sire..... / Dam's dam.....

Signature.....

Postal address.....

Date.....

(1) Name of applicant.

(2) Class of stallion—draught, light, pony, thoroughbred.

(3) Name of stallion.

(4) If application is made after 31st March and before 1st July the "period" is to the 30th June in the following year.

3. Every owner shall submit his stallion or stallions to examination by a veterinary officer at an inspection parade arranged by the Chief Veterinary Inspector, excepting any stallion being five years of age or over registered under the Act or in respect of which a certificate has been refused, provided that—

4. When the owner of any stallion under five years of age has been notified that registration of such stallion has been refused because such stallion is not of approved standard he may by giving written notice elect to retain such stallion for a period of twelve months and then resubmit such stallion for registration.

5. Secretaries of agricultural societies or similar bodies shall make all necessary arrangements for inspection parades as required by the Chief Veterinary Inspector or by the veterinary officer conducting the examination. Where no such society exists a local police officer will notify owners who inquire of the arrangements made.

6. An owner who is or has been unable to submit his stallion for examination at an inspection parade may apply to the Chief Veterinary Inspector for a special inspection parade, and if the Chief Veterinary Inspector deem the reasons good and sufficient a parade may be arranged on the owner making payment, in advance, of the prescribed fee.

7. The fee for a special inspection parade shall be One pound (£1), together with the amount of railway fare (first class) from Melbourne to the place of examination and return.

8. (*a*) The following unsoundnesses are hereby declared to be hereditary unsoundness, the presence of any of which will constitute a reason for the refusal of a certificate of registration:—

Bog spavin.
Bone spavin.
Cataract.
Chorea "shivering" or "nervy."
Curb.
Navicular disease.
Nasal disease (Osteoporosis).
Ringbone.
Roaring.
Sidebone.
Stringhalt.
Thoroughpin.
Whistling.

(*b*) A certificate will also be refused in the case of an animal considered by the examining veterinary officer to be below a reasonable standard as regards type, conformation, and breeding.

(*c*) For the purpose of these regulations "ringbone," "sidebone," and "curb" are defined as follows:—

(i) "Ringbone."—Any exostosis on the anterior or lateral aspect of the phalanges below the upper third of the Os Suffraginis shall constitute a ringbone.

(ii) "Sidebone."—Any ossification of the lateral cartilage shall constitute a sidebone.

(iii) "Curb."—Any circumscribed swelling on the posterior aspect of the hock in the median line and within the lower third of the limits of the hock and the head of the metatarsal bones shall constitute a curb.

9. An owner shall furnish the examining veterinary officer with such particulars concerning a stallion as the officer may require at the time of examination of such stallion (such as name, breeder, pedigree, age, prior ownership, &c.), and if the veterinary officer deem it necessary the owner shall furnish a Statutory Declaration in regard to such particulars.

10. The Chief Veterinary Inspector shall, in writing, notify the owner of any stallion in respect of which a certificate is refused within fourteen days of such refusal, and shall state in such notification the reason for refusal.

11. Until the issue of a certificate or the publication of the Register the result of an examination of a stallion by a veterinary officer shall not be communicated to any person except as herein provided or under circumstances as follow:—

The veterinary officer may, in his discretion, communicate to an owner or an owner's agent duly authorized in writing to inquire the result of examination of such owner's stallion or stallions.

The reason for refusal of a certificate shall not be communicated to any person except the owner concerned or his agent duly authorized in writing, save under the direction of the Court in legal proceedings.

12. The certificate of registration shall be in the following form:—

VICTORIA.

Horse Breeding Acts 1919 and 1925.

Certificate of Registration.

Issued in respect of the (1).....stallion(2).....
owned by (3).....of(4).....the above-named stallion,
which was submitted to veterinary examination at(5).....
on(6).....and declared free from hereditary unsoundness,
may be used for stud purposes until the 30th June, 19 .

.....Chief Veterinary Inspector.

Department of Agriculture, Melbourne.

(1) Class.

(2) Name, age, and description.

(3) Owner's name.

(4) Owner's address.

(5) Place of examination.

(6) Date of examination.

13. The certificate of registration shall remain in force until the 30th day of June next following the date of issue: Provided that a certificate issued in respect of a registration made not more than three months before the 30th day of June in any year shall remain in force until the 30th day of June in that year and for twelve months thereafter.

14. An owner shall forthwith, in writing, notify the Chief Veterinary Inspector of the death or castration of his stallion, and shall with such notice return the certificate issued in respect of such stallion.

15. An owner shall forthwith, in writing, notify the Chief Veterinary Inspector of the sale or change in ownership of his stallion, and shall with such notice forward the certificate issued in respect of the stallion concerned, together with the name and address of the person to whom ownership is transferred. The Chief Veterinary Inspector shall thereupon endorse on the certificate the transfer of ownership and forward it to the person who has become the owner, and unless in such circumstances a certificate is so endorsed within one month after change of ownership the registration and the certificate shall be deemed to be cancelled.

16. An owner may, on payment of a fee of Twenty shillings, obtain a copy of the certificate of registration of his stallion, which copy, if endorsed as such by the Chief Veterinary Inspector, shall be deemed a certified copy.

17. An owner or person in charge of a registered stallion shall, on demand by

(*a*) the owner or person in charge of a mare to be served; or by

(*b*) a veterinary officer in the employment of the Department of Agriculture, or any officer authorized, in writing, by the Minister; or by

(*c*) a member of the Police Force,

produce the certificate of registration issued in respect of his stallion or the certified copy thereof for perusal.

18. (*a*) If the report of a veterinary officer shows that a stallion is not sound or is not of approved standard, the owner may apply, in writing, to the Chief Veterinary Inspector to have the stallion examined by an Appeal Board and such application shall be made within thirty days of date of notice of refusal of certificate.

(*b*) If the report of the veterinary officer shows that the stallion is not of approved standard the application for examination by an Appeal Board shall be accompanied by a certificate from the president and two members of the committee of the society which arranged the inspection parade at which the stallion was examined that in their opinion the stallion is of a standard which conforms to a reasonable standard in respect of type, conformation, and breeding, provided that if no such society were concerned in the examination a similar certificate from three equine judges of repute will be accepted.

19. Each application for examination by an Appeal Board shall be accompanied by a fee of not less than £4 and not more than £10 as is fixed.

20. An Appeal Board shall consist of the Chief Veterinary Inspector or his deputy, and

(*a*) where the veterinary officer's report shows that the stallion is not sound two members chosen from veterinary surgeons registered under the *Veterinary Surgeons Act* 1915, and one of such members may be nominated by the owner of the stallion and one by the executive of the body known as the Chamber of Agriculture; or

(*b*) where the veterinary officer's report shows that the stallion is not of approved standard two members chosen from a panel of competent persons appointed by the Minister to be members of such panel; and one of such members may be nominated by the owner of the stallion and one by the executive of the said body. No person who has already examined the stallion and expressed any opinion based on such examination shall be a member of an Appeal Board.

21. The stud-books prescribed for the purpose of the Acts are the Australian Stud-Book and the Register kept by the Victorian Trotting and Racing Association.

22. The owner of any stallion, the registration of which has been refused, may retain such stallion for breeding purposes with his own mares only, on payment of a fee of Twenty shillings and notification in the following form:—

NOTIFICATION TO RETAIN A STALLION WHICH HAS BEEN REFUSED REGISTRATION.

Horse Breeding Act 1925.

The Chief Veterinary Inspector,
Department of Agriculture,
Melbourne.

I,(1).....owner of the(2).....stallion(3).....for which a certificate of registration has been refused, desire to retain such stallion for breeding purposes with my own mares only, and enclose herewith the sum of One pound (£1) being the amount of the prescribed fee for the period ending 30th June, 19 (4) I submit the following true particulars of the above-named stallion.

Date foaled.....

Sire..... { Sire's sire.....
{ Sire's dam.....

Dam..... { Dam's sire.....
{ Dam's dam.....

Signature.....

Postal address.....

Date.....

(1) Name of applicant.
(2) Class of stallion—draught, light, pony, thoroughbred.
(3) Name of stallion.
(4) If application is made after 31st March and before 1st July the "period" is to the 30th June in the following year.

23. The owner of any stallion for which a certificate of registration has been refused, which stallion was registered for the period ended 30th June prior to such refusal, may obtain compensation to the extent provided for in the Act on submitting evidence satisfactory to the Chief Veterinary Inspector that the stallion has been completely castrated.

MANURES FOR BEANS.

Last year a number of plots were established on the farm of Mr. H. Rowe, at Kalimna West, to enable investigations to be made into the most suitable fertilizer dressings for the growing of beans. While practically all the growers in the district use fertilizer of some kind, there are wide differences of opinion amongst them as to which one is the most effective, and the experiments were designed to yield definite information on this point. The plots were sown with Canadian Wonder beans in rows 2 ft. 3 in. apart. The following are the results obtained:—

Plot.	Yield of Green Beans.	Yield of no Manure Check Plot.	Increase Over no Manure.
	lb. per acre.	lb. per acre.	lb. per acre.
Super., 2 cwt.; sulphate of ammonia, ½ cwt.; sulphate of potash, ½ cwt.	1,651	892	759
Super., 4 cwt.; sulphate of ammonia, 1 cwt.	1,689	828	861
Super., 2 cwt.; sulphate of ammonia, 1 cwt.	1,312	650	662
Super., 1 cwt.; sulphate of ammonia, ½ cwt.	1,592	777	815
Super., 1 cwt.; lime, 10 cwt.	1,294	777	517
Super., 1 cwt.	1,167	662	505
Super., 2 cwt. (four plots)	1,261	675	586
Sulphate of ammonia, ½ cwt.	650	752	102*
Sulphate of ammonia, 1 cwt.	734	866	132*

* Decrease.

The plots were sown on the replicated system. Each manurial treatment was repeated four times, and a "no manure" check plot was sown alongside each manured plot. This system was designed to give greater accuracy, and it was possible to calculate the reliability of the figures obtained.

The results are for one year only, and while they may be taken as giving accurate information under the climatic conditions which prevailed last year, further work over two or three years, to eliminate any seasonal effect, would be necessary before any results can be accepted as final.

The yields obtained show that phosphatic manures are necessary to obtain the best results with beans on Kalimna soils. Not only was the total yield much higher, but the yield from the first picking, which is the most important from an economic aspect, showed an increase of over 50 per cent. over the "no manure" plots. Sulphate of ammonia appeared to depress the yield, but in combination with superphosphate gave substantial increases.

SCAB OR SHOT HOLE OF APRICOTS.*

CONTROL EXPERIMENTS IN THE GOULBURN VALLEY.

PROGRESS REPORT FOR 1927.

By S. Fish, M. Agr. Sc., Science Branch, Department of Agriculture.

The margin of profit from apricot production in the Goulburn Valley is narrow, due mainly to high production costs, variable yields, and the presence of scab on the fruit. Scabby fruit will not be accepted at the canneries, and the selling price in the fresh-fruit markets in Melbourne and Sydney is depreciated from 10 to 40 per cent., according to the amount of scab present in consignments. Thus, where the percentage reaches a certain point, apricot production is not profitable.

Investigation of this disease, as it occurs in the Goulburn Valley, and on its control, was commenced in 1926, and the first progress report was published in this *Journal* for July, 1927.

The most promising results obtained during 1926 were from Bordeaux mixture—6.4.40—applied at the dormant period and again at the pink bud stage, and the experiments of 1927 were designed to test further the efficiency of this spray in the prevention of scab development. To the mixture, which was of the same strength as that used in the 1926 trials, lime casein was added as a spreader, 1 lb. being allowed for each 100 gallons of the spray.

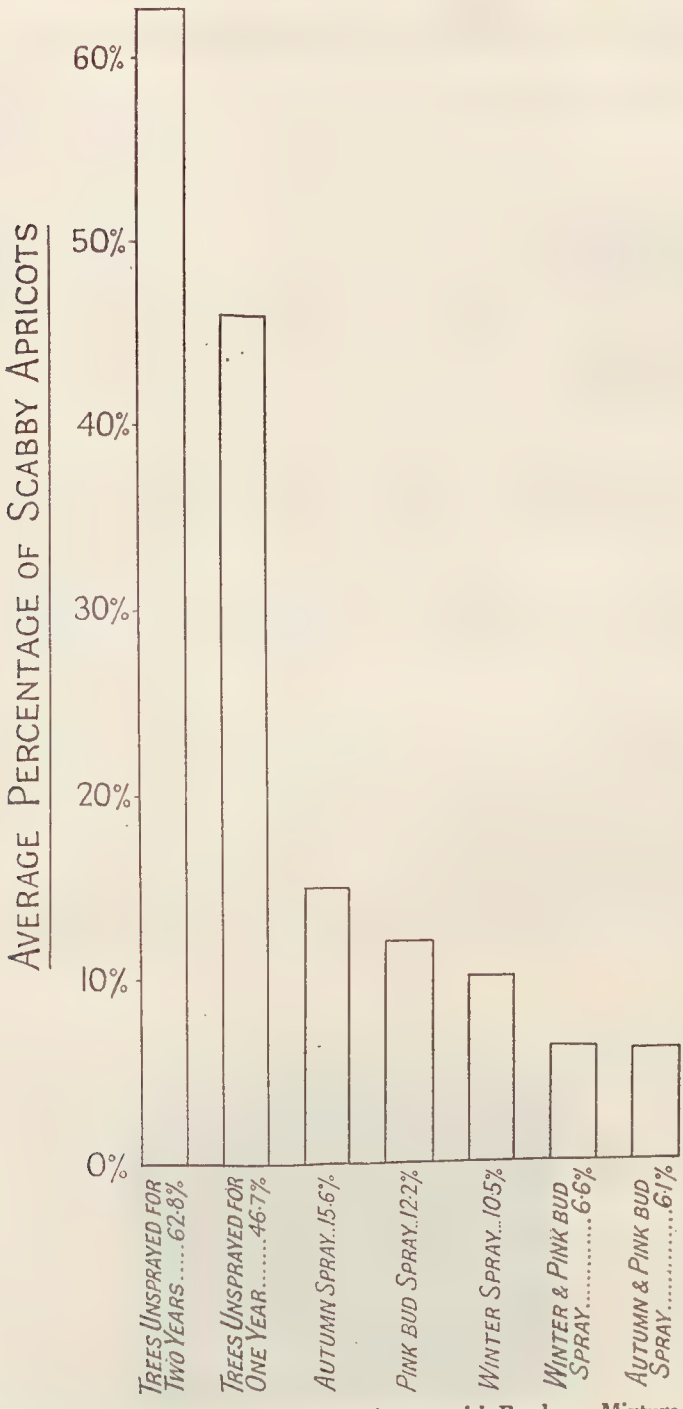
Experiments were made to find the value of applications at the following stages:—

In the autumn before the leaves had fallen (19th May).
In the winter after the leaves had fallen (20th July).
At the pink-bud stage (15th August, approximately).
In the autumn and again at the pink-bud stage.
In the winter and again at the pink-bud stage.

The tests were made on 108 Moorpark trees, 14 years old. Three trees were made the unit for each trial. Thirty-six such units were tested, and each mode of treatment was repeated at least four times at different places on the block. For the purposes of comparison four units of trees unsprayed for one year were included in the experiments, as well as two units of trees that had not been sprayed for two years.

All the Bordeaux mixture used was made up in precisely the same way:—12 lb. of bluestone was dissolved in 40 gallons of water; 8 lb. of quicklime, free from "rock," was slaked slowly with water and brought up to 40 gallons. The two lots of 40 gallons were run at the same time into the power pump. A sky-blue coloured Bordeaux resulted, which did not give a precipitate with potassium ferrocyanide solution. The spreader was made into a fine paste and added to the spray mixture at the rate of 1 lb. to the 100 gallons of the spray. The weather conditions, on every occasion of spraying, were favorable, and the sprays had dried on the trees before any rain fell.

* The fungus causing this disease is known by the names of *Coryneum beijerinckii* Oud, and *Clasterosporium carpophilum* (Lév) Aderh. In the light of G. Samuel's work published recently in Ann. of Botany XLI. 162 pp. 575-404, it would appear that the latter name should be used.



Graph showing results obtained from experiments with Bordeaux Mixture for the suppression of Scab or Shot Hole of Apricots.

Results of 1927 Experiments.

Treatment of Units.	Average Percentage of Scabby Fruit.*	Variation of the Percentage† of Scab on Units of similar Treatment.
	%	% %
Unsprayed for two years	62·8	56·6–64·0
Unsprayed for one year	46·7	43·8–53·2
Sprayed with Bordeaux mixture in the autumn ..	15·6	12·2–21·0
Sprayed with Bordeaux mixture at the pink-bud stage ..	12·2	9·3–14·8
Sprayed with Bordeaux mixture in the winter	10·5	8·7–12·3
Sprayed with Bordeaux mixture in the winter and at the pink bud stage	6·6	5·8– 7·1
Sprayed with Bordeaux mixture in the autumn and at the pink bud stage	6·1	5·3– 7·3

The strength of the Bordeaux mixture used in each case was 6.4.40.
* "Scabby fruit" means apricots showing any definite scab due to the fungus.
† Percentages are based on the complete yield of the trees under test.

Summary.

For the profitable control of Scab or Shot Hole of Apricots, under Goulburn Valley conditions, two sprayings of Bordeaux mixture—6.4.40—(bluestone, 6 lb.; quicklime, 4 lb.; and 40 gallons of water; plus 1 lb. of lime casein spreader to 100 gallons of spray), one applied either before the leaves have fallen in the autumn, or in the winter after the leaves have fallen, and the second applied at the pink-bud stage, have reduced the percentage of scabby fruit, in a year very favorable for the development of this disease, from 46.7 per cent. on unsprayed trees to 6.6 per cent.

I take the opportunity to thank Mr. W. Gilchrist, Manager of the High School Farm, Shepparton, and Messrs. Pilloud and Nunn, Orchard Supervisors, for active assistance in the carrying out of the experiments.

PLANTING AND RECONSTITUTION OF VINEYARDS.

Conditions Governing the Distribution of Phylloxera-Resistant Vine Rootlings and Cuttings.

The conditions subject to which Victorian vine-growers may purchase phylloxera-resistant vine cuttings and rootlings (grafted and ungrafted) from the State Vine Nursery, at Wahgunyah, have been drawn up for the current year, and copies of same are available on application.

Beyond certain alterations of dates, the conditions are much the same as for last season. There is no alteration in price.

Dates before which Applications must be made.

For Grafted Rootlings (1929 distribution, June to August inclusive) applications will be received until 31st May. (For the 1928 distribution, the time for receiving applications closed on the 31st May, 1927, and present applicants cannot be supplied until 1929.)

For Ungrafted Rootlings, to be distributed from July to August, 1928, inclusive, applications will be received until 30th June, 1928. After these dates applicants can be supplied only in the event of there being a surplus, after all regular applications have been satisfied.

Applicants are required to finally decide, when filling in their application forms, as to their stock and scion requirements; no amendment can be permitted later.

Prices.

It will suffice here to explain that resistant vines are supplied to intending planters in any of the following forms, and at the prices stated; packing extra, in the case of consignments forwarded by rail:—

Resistant rootlings, grafted with scions previously supplied by applicants, at per 1,000, £12 (Deposit, 30s. per 1,000).

Resistant rootlings, ungrafted, at per 1,000, £3 (Deposit, 15s. per 1,000).

Resistant cuttings, at per 1,000, £1 10s.

Application Forms.

No application will be entertained unless made on the forms supplied for the purpose, which are obtainable from the Horticultural Superintendent, Department of Agriculture, 605 Flinders-street, Melbourne, or from the Manager, Viticultural Station, Rutherglen.

Separate forms are provided for (*a*) Grafted Rootlings; (*b*) Ungrafted Rootlings and Cuttings. Applications must be filled in on the proper forms, and accompanied by a deposit as specified above.

Each applicant for forms will be supplied with a copy of the detailed conditions governing the distribution of phylloxera-resistant vine rootlings (grafted and ungrafted) and cuttings.

Applicants are earnestly requested to thoroughly familiarize themselves with these. *They are warned that under no circumstances can any departure be permitted from the regulations governing the distribution as detailed therein, nor can any request for special consideration be entertained.*

EARLY POTATO FIELD CROP COMPETITION, ROMSEY, 1928.

Report of the Judge, J. T. Ramsay, Potato Expert.

An excellent entry of seventeen crops was received for this competition—a fact which says much for the interest which district growers are taking in this crop. Unfortunately, owing to vagaries of the season, several of the crops were ripened much earlier than the balance, and were harvested before being judged. The erratic nature of the season was responsible for a good deal of second growth being in evidence, but this is a purely seasonal condition, caused by abnormal rains in January following a spell of very dry weather, and in no way reflects on the growers. It had the effect, however, of spoiling the quality of many of the crops.

Owing to the weather conditions of the season, both early and late blight was in evidence on the leaves of all crops judged, but in no instance was any tuber affectation noticed in the crops entered for competition. These, generally speaking, were very clean, and some very heavy yields of the Early Carman variety were recorded.

A noticeable feature in the entries was the closer spacing which growers had adopted, largely as a result of information gained from previous competitions. Out of the seventeen entries all but three had the planting done at from 30 to 33 rows per chain, which, no doubt, was accountable for much of the weight of the crop.

The standard of cultivation was good, and the purity of the entries was very marked, showing that growers are taking an interest in the keeping of varieties free from foreigners. There was almost complete absence of any disease affectation of the tubers from the various scabs, &c.

ALLOCATION OF POINTS.

Name.	Rows per Chain.	Cleanness.	Evenness.	Quality.	Weight per Acre.	Points for Weight.	Total Points.
Possible Points	..	10	10	35	..	45	100
					T. C. Q.		
J. Ochiltree	33	8	8	32	10 17 0	45	93
T. Parks	33	8	9	31	10 0 0	41	89
T. W. Ochiltree	30	7	8	30	9 10 0	39	84
Spring Bros.	32	7	7	30	9 5 0	38	82
P. Shechan	32	8	9	33	7 14 0	32	82
W. & J. Anderson	32	8	9	34	6 11 0	25	76
A. Thorburn	29	9	9	34	5 14 0	23	75
L. Eaton	30	8	9	34	5 6 0	22	73
Barbour Bros.	30	7	7	32	6 11 0	25	71
A. A. Ott	30	8	7	30	6 11 0	25	70
R. Jones	28½	7	7	31	7 10 0	31	75
C. Else	28	9	8	33	4 12 0	18	68
F. Newnham	32	7	7	30	4 16 0	18	62
A. Vinnicombe	33	6	7	31	3 15 0	15	59
T. Ingram	Harvested before date of judging.						
W. S. Forbister ..							
G. F. Stafford							

SHEEP CLUBS IN CANADA.

Boys' and Girls' Sheep Clubs have been responsible for establishing over 100 new sheep flocks in Canada recently. They are proving a big factor in creating further interest in sheep raising, and are likely to be the means of establishing thousands of sheep flocks on farms where sheep are not at present being kept, says the Canadian Government Information Bureau.

Sheep club members have the co-operation of the Canadian banking institutions in providing loans subject to the regulations of the policy, if such are desired. The policy is administered by the Sheep and Swine Division, Live Stock Branch, Canadian Federal Department of Agriculture, in co-operation with the provincial Departments of Agriculture. District promoters in the various provinces in which the policy is operative give assistance in selecting suitable ewe stock, give direction and assistance in equipment of buildings, feeding and management. The Canadian Co-operative Wool Growers Limited, Canada's national wool marketing agency, operated by the sheep raisers, ensures full market values for the wool clip. Sheep fairs and lamb sales establish market values, reduce marketing costs, and encourage the production of better lambs. Sheep raising is recognized as a branch of the live stock industry that has proved to be very profitable, and is strongly recommended for consideration by prospective settlers.

CANNED ASPARAGUS IN CHINA.

Over 95 per cent. of the canned asparagus sold in China originates in California, according to an American official report from Shanghai. During the twenty-odd years in which Californian asparagus has been offered on the China market, sales have grown to the present volume of about 12,000 cases annually.

The demand in the China market is largely for the higher grades of white asparagus. Mammoth White, packed in No. 2 square tins, makes up about 80 per cent. of the sales of Californian asparagus, the remaining 20 per cent. being divided between Mammoth Green, in No. 2½ square tins, and Mammoth White tips, in No. 1 square tins. Mixed asparagus tips, packed in small round picnic tins, have also recently been introduced.

ORCHARD AND GARDEN NOTES.

E. E. Pescott, F.L.S., Pomologist.

The Orchard.

CULTIVATION.

Cultivation work should be well on the way by this time. The ploughing should be advanced, so as to leave plenty of time for other orchard work. Autumn ploughing may be rough, but care should be taken to plough to the trees, so that a drainage furrow is left between the rows.

MANURING.

It is just possible, where heavy crops have been carried, that a top dressing of stable manure will be required to add humus to the soil. The fertility of the soil must be maintained; and, although stable and chemical manures as a general rule are of undoubted value as tree stimulants, well-cultivated and thoroughly tilled land will always carry fair crops with far less manure. Further, if the orchard land is well drained, cultivated, and sub-soiled, any manures that are used will be far more beneficial to the trees. The more suitable the conditions that are given to the trees, the better they can appreciate and assimilate their food.

Perhaps the most useful and valuable of manures is stable manure. It is of great use, not only as a manure and as an introducer of necessary bacteria into the soil, but its value in adding humus to the soil is incalculable. Organic matter, such as stable manure, introduced into the soil quickly becomes humus; this greatly ameliorates and improves soil conditions. It is impossible to say what quantity of stable manure is necessary per acre; that can be determined only by circumstances. Orchards in different climates and varying soils will require differing quantities. A too liberal use of stable manure will be over-stimulating in most cases, and at all times an excess beyond what is necessary for present use will only be waste, as humus is readily lost from the soil, once it is in an available food form.

It has been pointed out in these notes previously that an improved physical condition is far more profitable to the fruit-grower than the continued use of manures. A tree will be far more productive if it is happy in its soil conditions; uncomfortable conditions will always result in unprosperous trees.

A dressing of lime, using about 4 or 5 cwt. per acre, is of great value in stiff or heavy orchard lands; and it may be given at this season. The lime, which must be fresh, should be distributed in small heaps between the trees, covered with a layer of soil, and allowed to remain for a few days before ploughing or harrowing in.

Pests.

The advice given last month for spraying should be followed, particularly where any oil emulsions or washes are to be used.

Orchards will benefit if an attack is now made upon the Codlin moth. All hiding places, nooks, and crannies, where the larvæ have hidden, should be thoroughly searched and cleaned out. The orchardist has far more time now to do this work than he will have in the spring time

General Work.

Drainage systems should now be extended with as little loss of time as possible.

New planting areas should be prepared, and sub-soiled or trenched wherever possible.

The Vegetable Garden.

Weeds must be kept down in the vegetable garden. Weeds are generally free growing at this season; their growth is very insidious, and they will crowd out the young seedlings or plants in a very quick time. Hoeing and hand weeding must be resorted to, preferably hoeing. The frequent use of the hoe in winter time is of much benefit in the vegetable garden. A varied assortment of crops is now being produced; and if these can be kept growing much better crops will result. The soil quickly stagnates in the winter, and the only way to prevent this is to keep the surface stirred. Thus, a double service is performed with the aid of the hoe.

The application of lime is of great necessity at this season. In addition to amending unhealthy and unsuitable soil conditions, lime is particularly useful as an insecticide. It assists in destroying in immense numbers both eggs and insects that would breed and live in the ground ready to do damage to all classes of vegetable crops. Therefore, wherever possible, the soil should receive an application of lime. The garden should, as well, be manured with stable manure, but not for some weeks after the lime application.

Cabbage and cauliflower plants may be planted out; and seeds of parsnips, carrots, onions, peas, and broad beans may be sown.

The Flower Garden.

The whole flower section should now be thoroughly dug over. All beds should be cleaned up, top dressed with manure, and well dug. The light rubbish, such as foliage, twiggy growths, weeds, &c., may all be dug in, and they will thus form a useful addition to the soil. These should never be wasted. Only the coarser and stouter growths should be carted away for burning, and then the ashes may be used as manure. No part, whatever, of garden rubbish or litter need be wasted. In one form or another it should be replaced in the soil.

May is a good month for establishing new gardens, and for planting out. All deciduous plants and shrubs may now be planted. It is not necessary to dig a deep hole for planting. A hole in which the roots of the plant can be comfortably arranged, without crowding or cramping, will be quite sufficient for the purpose, the soil around being very well cultivated.

Continue to sow seeds of hardy annuals, including sweet peas, although the main crop of sweet peas should by this time be well above ground. Where there has been any overplanting, the young plants will readily stand transplanting, and this will greatly assist those that are to remain. Annuals should not be crowded in the beds. They require ample room for suitable development, and thus the seeds should be sown thinly or the plants set out a good distance from each other.

All herbaceous perennials that have finished blooming may now be cut down. Included amongst these are phlox, delphiniums, &c. If these are to remain in their present situation for another season it is always an advantage to raise them somewhat, by slightly lifting them with a fork, so that too much water will not settle around the crowns; they may also be mulched with stable manure, or the manure may be forked into the soil around the crowns.

REMINDERS FOR JUNE.

LIVE STOCK.

HORSES.—Those stabled and in regular work should be fed liberally. Those doing fast or heavy work should be clipped; if not wholly, then trace high. Those not rugged on coming into the stable at night should be wiped down and in half-an-hour's time rugged or covered with bags until the coat is dry. Old horses and weaned foals should be given crushed oats. Grass-fed working horses should be given hay or straw, if there is no old grass, to counteract the purging effects of the young growth. Old and badly-conditioned horses should be given some boiled barley. Paddocked horses should be looked at from time to time to ascertain if they are doing satisfactorily

CATTLE.—Cows, if not housed, should be rugged. Rugs should be removed. and aired in the day-time when the shade temperature reaches 60 degrees. Give a ration of hay or straw, whole or chaffed, to counteract the purging effects of young grass. Cows about to calve, if over-fat, should be put into a paddock in which the feed is not too abundant. If in low condition feed well to tide them over the period and stimulate milk flow. It should be borne in mind that the cows most liable to milk fever are those that have been low in condition and are rapidly thriving. A leaflet on the treatment advised is obtainable on application to the Department. It will generally be found most profitable to have cows calve in autumn. They will then pay well for feeding through the winter, and will flush again with the spring grass. Calves should be provided with a warm dry shed. Cows and heifers for early autumn calving may be put to the bull.

Observe strict cleanliness and regularity with regard to temperature and quantity of feed to avoid losses and sickness incidental to calf rearing.—Leaflet on "Calf Rearing" on application.

PIGS.—Supply plenty of bedding in well-ventilated sties. Sows in fine weather should be given grass or lucerne run. Bulletin on the Pig Industry is now available.

To get the best results, pigs should be bred and fed on the lines prescribed in articles printed in this *Journal* for May, June, July, August, September, and October of last year.

SHEEP.—As June is the month in which the bulk of the lambs are dropped in Victoria, careful attention should be given to all flocks of lambing ewes. Two- and four-teeth ewes, particularly merino and fine-woolled crosses lambing to English rams, often have trouble. During the peak period of lambing, the flock-owner should visit the paddock at least three times a day (early in the morning, midday for any special cases, and late evening are the best times), so that aid may be given to any young ewes that are having abnormal difficulty in parturition. It is not wise, of course, to disturb the flock unnecessarily at this stage, and sheep dogs should not be allowed to accompany the flock-master on his daily rounds.

It may be found advisable to induce the young ewe to take to her lamb immediately after birth; to help in this a small enclosure of stone, wood, or brick might be built in a convenient place; the ewe, with her lamb, should be put therein for a few hours; the result will usually prove worth the trouble.

Mark ram lambs as soon as possible; this can be done any time after a week from date of dropping, until all the ewes have lambed; they can be marked in batches as they become a few weeks old. A good idea is to construct temporary yards in the paddock made with stakes, wire-netting, and a few hurdles, so that the marked lambs can be dropped on to clean pasture.

Flocks of dry sheep should be attended to regularly, and, if necessary, crutched, the wool removed from around the eyes, hoofs pared, and treatment administered in case of worms, or flies, or foot-rot. Hoofs can be pared easily during the winter months; it should be remembered that overgrown hoofs are conducive to lameness, and even to foot-rot.

Stud sheep intended for exhibition should be given special feed from now on, and their wool looked to for general protection.

Foxes are more ravenous during the winter months. Sparrows, starlings, and parrots are good bait. Poisoning the carcasses of lambs usually accounts for scavenger foxes only. Powdered strychnine just sufficient to cover a three-penny piece is the usual dose to apply to a bait.

POULTRY.—Supplies of shell grit and charcoal should always be available. Sow a mixture of English grass and clover; this not only removes taint in soil but provides excellent green fodder for stock. Where possible, lucerne and silver beet should now be sown for summer feed; liver (cooked) and maize aids to egg production during cold weather. Morning mash should be mixed with liver soup given to the birds warm in a crumbly condition. All yards should be drained to ensure comfort for the birds.

CULTIVATION.

FARM.—Plough potato land. Land to be sown later on with potatoes, mangolds, maize, and millet may be dressed with stable manure and well worked. Sow malting barley and sow cereals. Lift and store mangolds, turnips, &c. Clean out drains and water furrows. Clean up and stack manure in heaps protected from the weather.

ORCHARD.—Finish ploughing; plant young trees; spray with red oil or petroleum for scales, mites, aphis, &c.; carry out drainage system; clean out drains; commence pruning.

VEGETABLE GARDEN.—Prepare beds for crops; cultivate deeply; practise rotation in planting out; renovate asparagus beds; plant out all seedlings; sow radish, peas, broad beans, leeks, spinach, lettuce, carrot, &c.; plant rhubarb.

FLOWER GARDEN.—Continue digging and manuring; dig all weeds and leafy growths; plant out shrubs, roses, &c.; plant rose cuttings; prune deciduous trees and shrubs; sow sweet peas and plant out seedlings.

VINEYARD.—Thoroughly prepare for plantation, land already sub-soiled for the purpose. Remember that the freer it is kept from weeds from this forward, the less trouble will there be from cut-worms next spring. Applications for grafted resistant rootlings and cuttings must be made before the end of the month—see current issue. Pruning and ploughing should be actively proceeded with. In northern districts plough to a depth of seven or eight inches as early in winter as practicable. Manures should be applied as early as possible.

Cellar.—Rack all wines which have not been previously dealt with. Fortify sweet wines to full strength.

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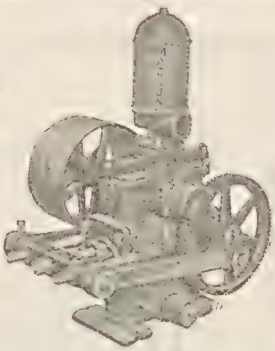

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Electric motor power totals 900 H.P.

Produce can be placed on conveyors at any point and mechanically carried to any chamber in the building, or conveyed from the chambers direct into the ship's hold.

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Facilities are provided for producers and smaller exporters of the various kinds of produce, so that direct shipments on their own account may be undertaken. The Government ownership and conduct of Cool Stores places producers in an independent position, and, in addition, preserves an open channel for the carrying on of the export trade in perishable products.

The Department of Agriculture will receive, handle, freeze, store, and ship **Butter, Cheese, Eggs, Fruit, Meat, Poultry, Rabbits and Hares, &c.,** for producers and exporters.

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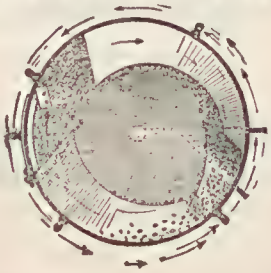

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RESISTANT CUTTINGS, per 1,000 (packing extra) - - - 15/-
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Applications must be made on the official order forms, which may be obtained from THE DIRECTOR, DEPARTMENT OF AGRICULTURE, MELBOURNE, or from THE PRINCIPAL, VITICULTURAL COLLEGE, RUTHERGLEN

Full particulars concerning the distribution, explaining the conditions which must be complied with by applicants, are obtainable on application to

THE DIRECTOR OF AGRICULTURE, MELBOURNE

DEPARTMENT OF AGRICULTURE

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Supplies of graded, select bred pedigreed Seed Wheat of "FEDERATION" varieties are available from the State Experimental Farm, Rutherglen. Price, 8s. per bushel.

Freight on consignments to the Wimmera, Western District, and Gippsland will be charged only as from Werribee.

Early application should be made to the

DIRECTOR OF AGRICULTURE, Public Offices, MELBOURNE

DEPARTMENT OF AGRICULTURE, VICTORIA

Red Poll Dairy Herd

The Department has now completed the orders for calves that were booked ahead of calving when the advertisement was withdrawn; consequently the booking of orders for bull calves from the forthcoming calvings has now been resumed.

BULL CALVES are sold for delivery at a month old at prices based approximately on the actual milk and butter fat record of the dam at the rate of 1s. per lb. of butter *fat* yielded. Thus a calf from a cow with a 400 lb. butter fat record is sold for 20 guineas, one from a 300 lb. butter fat cow for 15 guineas, and so on. Bull Calves *ex* heifers on their first calf are sold for a set price of 10 guineas.

(For Record of Yields of dams see Red Poll Herd Book.)

SIRES IN USE:

VICTORIA VOLCANO (322 A.)

Sire: Nicotine (69 A.A.) by Acton Dewstone (imp.) 9524 (4 A.A.).
Dam: Tonga (253 A.) by Honingham Archbishop (imp.) 9702 (48 A.A.).

Tonga's butter fat yields for 6 successive lactation periods are as follow:—1916, 341 lb.; 1917, 398 lb.; 1918, 419 lb.; 1919, 479 lb.; 1920, 428 lb.; 1921, 562 lb.

BELLIGERENT (Imported) 11096 (8 A.A.)

Dam's Record (1st milking) 7144 lb. milk.

Dam's Dam's	,,	14533 lb. milk	...	4 years	average	12871 lb. milk.
Sire's Dam's	,,	10370 ,,	...	7 ,,	,,	9354 ,,
Sire's D. Dam's	,,	9510 ,,	...	12 ,,	,,	8033 ,,
G. Sire's D. Dam's	,,	10215 ,,	...	7 ,,	,,	9386 ,,
G.G. Sire's D. Dam's	,,	12565 ,,	...	10 ,,	,,	8853 ,,
G.G.G. Sire's D. Dam's	,,	10088 ,,	...	2 ,,	,,	9754 ,,

BIT O' 'BACCA (Vol. 3)

Sire: Nicotine (69 A.A.) by Acton Dewstone (imp.) 9524 (4 A.A.).
Dam: Nictitana (311 B.) by Nicotine (69 A.A.).

Nictitana's butter fat records for 6 successive lactation periods are as follow:—1918, 450 lb.; 1919, 396 lb.; 1920, 393 lb.; 1921, 465 lb.; 1922, 524 lb.; 1923, 536 lb.

Inspection of the Herd is Invited.

Visitors will be met at the Station on notifying the Manager, State Research Farm, Werribee.

Application for purchase to

Dr. S. S. CAMERON, DIRECTOR OF AGRICULTURE, MELBOURNE.

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V69